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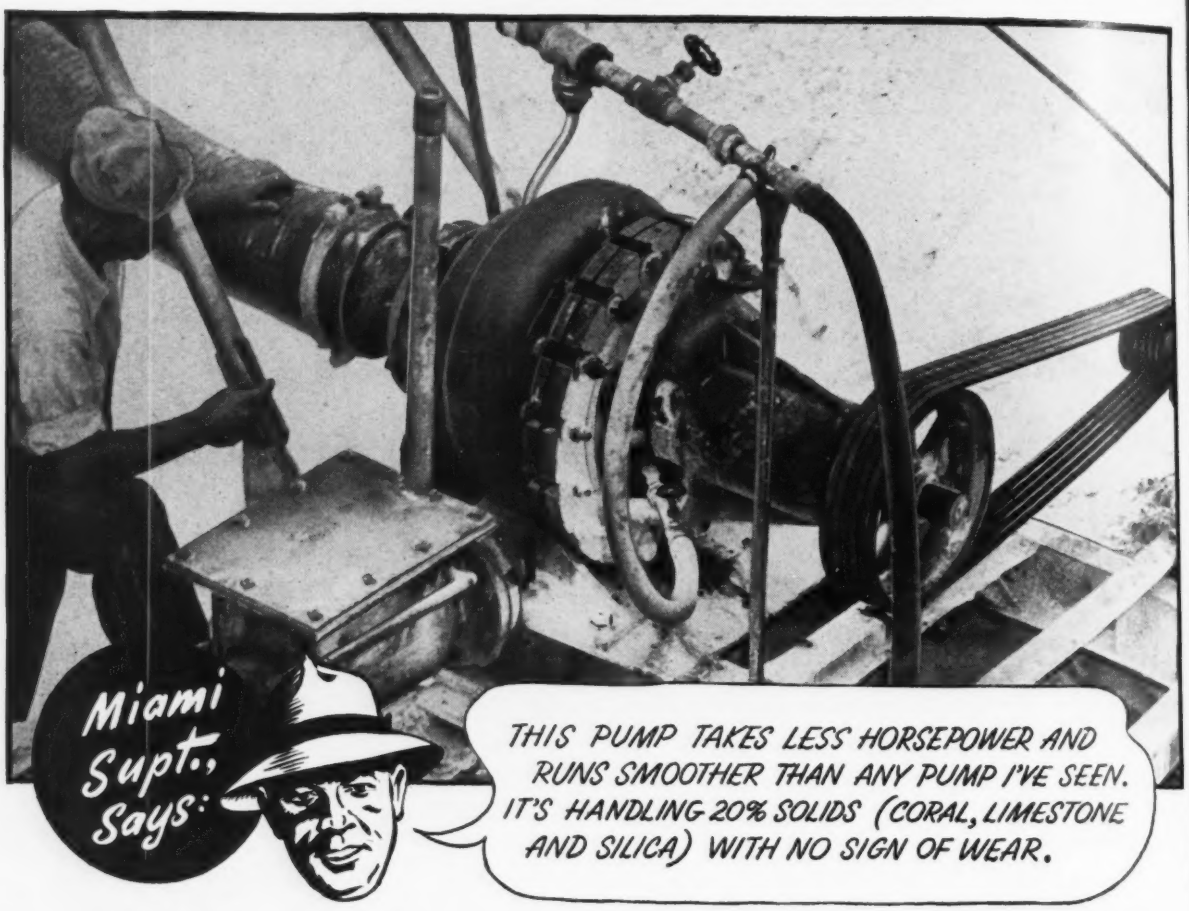
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News of the Week

ENGINEERING NEWS-RECORD • JULY 31, 1947 • VOLUME 139 • NUMBER 5

Federal construction work gets large appropriations

Flood control and river work of Army Engineers get largest part of money appropriated by Congress in last-minute rush before adjournment

Before recessing last week, Congress pushed through several huge appropriation bills that raised to $1,189,000,000 the new construction money provided for federal agencies during the present fiscal year, which began July 1. To this total must be added $705,000,000 in contract authorization. The funds provided compare with a budget request by President Truman in January of $1.4 billion (*ENR* Jan 16, vol. p. 75).

Much money for flood control

The U. S. Army Engineers received the largest amount of any agency for construction and planning. The corps obtained over $392,000,000 in actual funds in the Civil Functions Bill, which supplements $12,000,000 provided in an emergency flood-control measure passed a few weeks ago. The construction appropriation for the corps was increased greatly over what the House had approved upon the request of the President for funds for a comprehensive flood-control program for the Mississippi basin (*ENR* July 24, vol. p. 95).

For general flood control work, $246,072,825 is supplied, while $50,000,000 is provided for construction on the Mississippi and its tributaries. The general fund includes $231,800,825 for new construction, $5,000,000 for preliminary examinations and surveys, $4,500,000 for advance planning, and $2,400,000 for maintenance of completed jobs.

Largest amounts for flood control construction are: Garrison Reservoir, $20,105,625; Harlan County Reservoir, $9,000,000; Conemaugh Reservoir, $5,200,000; Wolf Creek Dam, $8,000,000; Fort Randall Reservoir, $9,000,000; Center Hill Dam, $6,500,000; levees on the Missouri River between Sioux City and the mouth, $6,000,000; Whitney Reservoir in Texas, $5,200,000; Bluestone Dam, $5,700,000; and Bull Shoals Dam, $6,700,000.

Other large flood control appropriations include: Allatoona Dam, $8,425,000; Los Angeles River, $4,016,000; Cherry Creek Reservoir, $4,500,000; Clark Hill Reservoir, $5,000,000; Fort Gibson Reservoir, $5,000,000; Lookout Point Reservoir, $4,000,000; Dorena Reservoir, $3,750,000; Buggs Island Reservoir, $4,800,000.

The flood control fund also supplies: Red River below Denison Dam, $2,500,000; Narrows Reservoir in Arkansas, $2,000,000; Farm Creek Reservoir in Illinois, $2,000,000; Clearwater Reservoir, $2,000,000, Canton Reservoir, $2,200,000; Delaware Reservoir, $3,200,000; Wister Dam, $2,950,000; Mount Morris Reservoir, $2,000,000; flood control work in the Kansas City area, $5,000,000; Kanopolis Reservoir, $2,900,000; and Fall River Reservoir, $3,000,000.

$97,000,000 for harbor work

For rivers and harbors construction and planning the Corps of Engineers is provided with $96,718,700. Of this amount, $37,176,700 is for new construction, $50,000,000 for maintenance, which will be primarily construction, $3,645,000 for examinations and surveys, and $3,500,000 for advance planning.

Largest projects in the rivers and harbors construction fund are: McNary Dam on the Columbia River, $4,500,000; Missouri River between Kansas City and Sioux City, $4,500,000; Mississippi River between the Ohio and the Missouri, $4,500,000; and the Gulf Intracoastal Waterway between Apalachee Bay and the Mexican border, $1,800,000. This construction fund also includes $1,200,000 for the New Haven, Conn., harbor; $2,250,000 for the Missouri below Kansas City; $1,000,000 for the San Diego River and Mission Bay in California, and $1,000,000 for the Black Rock Channel and Tonawanda Harbor in New York.

More money for hospitals

To permit the Veterans Administration to go ahead with a $1.2 billion hospital program, Congress renewed a contract authority totaling $441,000,000 for that agency which had been issued previously. The Veterans Administration also was given $338,000,000 of additional contract authority. Of this latter item, about $236,000,000 will be used for 15 new hospitals added to VA's comprehensive plan. Because the VA at present has about $270,000,000 cash on hand for meeting construction contracts previously awarded, plus new agreements, this agency was given no actual appropriation for construction.

The 15 new VA hospitals planned are as follows: Boston, 1,000-bed; New York City area, 1,000; North Carolina area, 1,000; Memphis, 1,000; Ann Arbor, 500; Chicago, 1,000; Topeka, 1,000; Oklahoma City, 1,000; Marlin, Tex., 200; Los Angeles area, 1,000; San Diego, 200; San Francisco area, 1,000; Denver, 500; and two hospitals at Cleveland, 1,000 and 1,250-bed.

More money for irrigation

For the Department of the Interior a total of $194,600,000 was provided. Money for the Bureau of Reclamation in this total includes an actual appropriation of $84,898,038 for construction, plus authority to use $4,766,700 from power revenues for similar work. The bureau also got $2,500,000 for general investigations. The new money supplements about $82,000,000 of unobligated funds that the bureau has as a carry-over fund from the fiscal year that ended June 30.

Of the bureau's new construction appropriation, $17,000,000 is earmarked for work on the Missouri River Basin, $49,841,288 for general construction, $11,876,750 for the Reclamation Fund, $1,500,000 for Fort Peck, $3,245,000 for the All-American Canal, and $1,000,000 for levee work on the Colorado River.

(*Continued on following page*)

(Continued from preceding page)

The largest items in the General Construction Fund are as follows: Columbia Basin, $17,500,000; Davis Dam, $9,700,000; Central Valley, $9,000,000; Colorado-Big Thompson, $9,500,000; Hungry Horse project, $2,500,000, and Gila Development $1,400,000. Money in the Reclamation Fund includes: Anderson Ranch Dam, $3,874,000; Klamath Project, $1,800,000; Deschutes Development, $1,626,000; and Provo River Work, $1,000,000.

For the Bureau of Indian Affairs nearly $6,000,000 is provided for construction and engineering work. This total includes $3,000,000 for roads, $1,822,000 for buildings and utilities, and $1,012,500 for irrigation.

The Bonneville Power Administration obtained $6,096,400 new money for construction. It was also given $4,935,500 of contract authority.

No new construction funds were provided for the Southwestern Power Administration.

A sum of $1,415,000 is provided for the National Park Service for parks and trails, some of which will be needed for maintenance, and $735,000 is supplied for new building and utilities construction. No money is provided in the bill for parkway construction. However, most of $9,000,000 provided last year remains available. This money will be spent for work on the Blue Ridge, Natches Trace and George Washington parkways.

For the Bureau of Mines only $450,000 is specifically earmarked for construction. This money will be used for building an anthracite laboratory at Schuykill Haven, Pa.

Money for the Geological Survey includes $3,000,000 for the topographic mapping and $2,625,000 for water resources investigations, including the construction of stream-gaging stations.

For work in the territories by the Department of the Interior, $4,000,000 is provided in actual appropriations and $15,000,000 in contract authority for improvement of the Alaskan Railroad. For highway work in Alaska $4,130,000 is available.

In view of the President's recent request for flood-control funds for the Mississippi basin, small construction appropriations for the Bureau of Reclamation and the Department of Agriculture were added in the second supplemental bill (H. R. 4347). A total of $6,400,000 was provided for the bureau, with most of the money to be spent on going jobs, and the Agriculture Department received $2,000,000.

Huge sum for atomic work

A new agency that received a huge appropriation for construction work is the Atomic Energy Commission. This agency received $150,000,000 in actual money and $250,000,000 of contract authority. The AEC plans $220,000,000 of construction this year. Few details are available as to how this money will be spent, but a general outline of the building planned was given in *Engineering News Record* June 19, 1947, vol. p. 971.

Although no actual funds were appropriated for the work, the U. S. Public Health Service received $75,000,000 in contract authority to start a $4 billion hospital and health center program for civilians. Details on how this big construction job will be handled were reported in *ENR* June 12, vol. p. 919.

PRA gets $250,000,000

Of the three constituent agencies of the Federal Works Agency, the Public Roads Administration received the only big appropriation. To permit the PRA to meet its obligations under the 1944 Federal-Aid Highway Act, $247,711,146 is supplied. For work by the PRA under pre-war laws, $8,000,000 is appropriated, as is $3,000,000 for construction of highways on public lands.

Only $3,800,000 is provided for the Public Buildings Administration. This money includes $1,250,000 for the West Central heating plant, $1,700,000 for a hospital center, and $850,000 for the National Institute of Mental Health. All three projects are located in the District of Columbia.

Even less was provided for the Bureau of Community Facilities. This agency got only $1,707,687, which is for public works in the Virgin Islands.

CAA obtains airport fund

The Civil Aeronautics Administration has been given $32,500,000 to advance the $1 billion civilian airport program authorized last year (*ENR* May 16, 1946, vol. p. 763). This money will supplement $45,000,000 provided last year and most of which remains available for construction.

A detailed story on the national airport plan and how CAA is doing the work appeared in *ENR* Feb. 20, 1947, vol. p. 295. The CAA also received a $2,227,400 appropriation specifically earmarked for work at the National Airport, Washington, D. C.

The appropriation bill for the Agriculture Department (H. R. 3601) contains $16,300,000 for work by the Forest Service on roads and trails in national forests. Part of this will be used for maintenance work by the service, which also received only $345,000 for flood control.

Greek work by U. S. forces

The huge appropriation bill for American aid to foreign countries includes large amounts for Greece and Turkey. This money includes $48,000,000 for reconstruction work in the former country. Details of this work and how it is to be handled are given on p. 18.

In the special appropriation bill (H. R. 4106) for the District of Columbia, a total of $15,644,000 is provided for construction work. This money is earmarked as follows: schools, $3,219,000; streets and bridges, $5,285,000; sewers, $3,750,000; water supply, $2,613,000; city refuse and other public works, $777,000.

One of the few appropriation bills already made law (P. L. 166) is that providing funds for the State Department. The International Boundary and Water Commission, United States and Mexico, received $4,000,000 for construction. This money will be spent for projects on the Rio Grande in accordance with the Mexican water treaty signed at Washington Feb. 3, 1944.

Construction funds for the National Advisory Committee for Aeronautics includes $5,805,000 for work at Langley Field, Va.; $1,674,000 for the Cleveland, Ohio, laboratory, and $2,400,000 for construction work but not specifically earmarked. In addition, $2,143,000 contract authority is granted for general construction by this agency.

New funds for the Tennessee Valley Authority specifically earmarked for construction total only $8,253,979. This sum consists of $5,000,000 for construction of chemical plants and $3,253,979 for work on the Wautaga and South Holston dams. However, the bill supplying funds for the TVA will also permit that agency to use $12,000,000 previously appropriated for construction work on the two dams, bringing to over $20,000,000 TVA's construction total.

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Water rate increase of 30 percent needed to offset higher costs

A W W A and F S W A conference hears construction costs will remain at high levels necessitating upward revision of rates

Waterworks utilities throughout the country will need 30 percent increase in revenues if they expect to continue the type of service and development that they have provided in the past. This is the conclusion reached by Louis R. Howson, Chicago consulting engineer, from an analysis of public and private water system operations.

Mr. Howson's paper was one of the highlights of the conference conducted by the American Water Works Association and the Federation of Sewage Works Associations, which met jointly in San Francisco July 21-25. This meeting, coupled with exhibits of 104 manufacturers, was the first time that the two groups have met concurrently. Delegates numbering 1,426 were in attendance to hear the presentation of 63 papers. Sessions of the water and sewage works groups were held independently for the most part, only two were designed to be of mutual interest to both groups.

Pointing out that waterworks systems have become engulfed in the "profitless prosperity" to which some industries have been subjected, Mr. Howson said that net revenues are being drastically curtailed at a time when there is simultaneously a sharp increase in the cost of construction, maintenance and operating expense.

Approximately one-quarter of the water works revenue is spent for new construction, he reported, and since construction costs have been greatly increased, it is obvious that either construction must be curtailed or additional funds provided from revenues adequate to finance the equivalent amount of construction at present day prices.

Construction will stay high

"We must be realistic", he continued. "Pre World War II construction price levels will never return. There probably will be some recession from present levels, but expansion programs for the next decade should be based upon construction costs ranging from 60 to 75 percent above those prevailing in 1938."

In outlining rate changing procedures, Mr. Howson said that any increase even though it may be generally expected by the public, creates discussion. This indicates the desirability of making the rate increase sufficiently large at the time when public psychology is favorable, rather than making repeated upward adjustments in the schedule.

One method that has been used with satisfaction in one of the larger municipal systems, he said, has been to have a base rate schedule which at all times would produce more than the requirements for operation and orderly expansion. To this rate schedule a variable percentage discount is applied, depending on the construction requirements. In this way consumers understand that the changes are wholly for the purpose of providing them with better facilities and service and changes in discount are singularly free from consumer resistance.

Sewage effluents for industrial use

Recent experience with the salvage and sale of municipal sewage effluents for industrial purposes indicates that this has attractive economic possibilities, a joint session of water and sewage works men were told by N. T. Veatch, Kansas City consulting engineer and president-elect of the A. W. W. A.

"In a number of instances", said Mr. Veatch, "the costs incident to the successful use of effluent have been found to be less than those involved in the development of an equal amount of additional water. It is also pertinent to note in this connection that unless unusual amounts of soluble mineral salts are involved, the required additional treatment of effluent for industrial use is neither difficult nor expensive."

Nine places where sewage effluents were being used, or planned for industrial purposes were cited, including:

Herrington, Kan.—The city's activated sludge effluent has been used by the Rock Island R. R. at that division point since 1934. Effluent is purchased on a sliding scale of charges ranging from 5 to 7 cents per 1,000 gal. delivered, and then softened in a plant owned by the railroad.

Grand Canyon, Ariz. — Activated sludge effluent from this resort center is coagulated, filtered and sterilized prior to distribution for use in boilers, locomotives, toilet flushing and lawn irrigation. Cost of reclaimed effluent is 30 cents per 1,000 gal. This is ten percent cheaper than the cost of water from any other available sources in that arid region.

Corpus Christi, Tex.—For two years during the war a trickling filter plant in the city supplied effluent to an oil refinery for cooling and condensing needs. Control of slime by chlorination was the only auxiliary treatment required. The city received an income of from $486 to $625 monthly from this sale.

Big Spring, Tex.—This city's contact-aeration (Hays type) plant supplies half of its effluent output to an oil refinery for cooling and boiler feed. The industry saves 5 cents per 1,000 gal. in the use of effluent compared with the cost of a groundwater supply. The city sells 18 mg. a month, receiving $800, or roughly 90 percent of the cost of operating and maintaining the plant.

Enid, Okla.—An oil refinery uses an intermittent stream, the dry-weather flow of which is the effluent from a trickling filter plant. The refinery plans construction of a pumping works at the plant outfall to pick up the flow directly.

Duncan, Okla.—Similar situation here to that at Enid.

Goldfield, Nev.—Settled sewage is used for metallurgical process at local mill.

Providence, R. I.—Disposal plant effluent used for cooling purposes at the adjacent municipal incinerator.

Cheyenne, Wyo.—Sale of effluent for industrial needs from a proposed trickling filter plant is under consideration. Current demand is 3 mgd., the plant effluent may be softened, filtered and delivered to consumers at a total cost of 4½ cents per 1,000 gal.

Baltimore, Md.—Trickling filter and activated sludge plant effluent totalling as much as 50 mgd. is purchased and treated by Bethlehem Steel Co. for use in its mill.

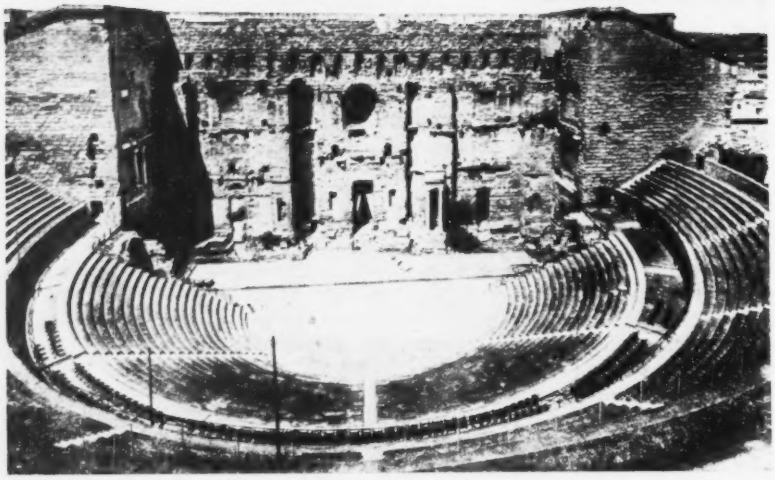
Steel company uses effluent

So successful has been the experience of the Bethlehem Steel Co at Baltimore in using sewage effluent since 1942 that the company will construct additional processing facilities with a capacity of 20 mgd. and thus be in a position to utilize a total of 65 mgd. of effluent. This operation, developed by Abel Wolman, Baltimore consulting engineer, was described by him.

Dr. Wolman reported that the Baltimore sewage disposal facilities include both activated sludge and trickling filter treatment units. Activated sludge effluent is used directly for steel making. Effluent from the filters, however, receives further processing by chemical precipitation methods. The latter includes an alum dosage of 4 or 5 grains, followed by 42 min. of flocculation and 1.5 hours of settling. Treated effluent is stored in a surface reservoir of some 70 mg. capacity.

During 1946, the cost of this indus-

(*Continued on page 9*)



***One of the "glories that was Rome"** in southern France is the theater at Orange modernized for present day use by the addition of new arena seats. The old stage wall is 121 ft. high and 340 ft. long.*

EUROPEAN NOTEBOOK . . . .

Ancient Rhone Valley Begins a New Cycle

By WALDO G. BOWMAN

Lyon, France—Postwar reconstruction is nothing new to the lower valley of France's Rhone River, which extends from Marseilles 175 miles north to Lyon. For at least 2,500 years it has been occupied by peoples to whom war or the recovery from war has been a normal pursuit. Moreover, each of these peoples represented the civilized elements of their times so that reconstruction involved considerably more than just finding a new cave or re-erecting a grass hut. Substantial buildings had to be rebuilt, transportation re-established and commerce rejuvenated, even as today.

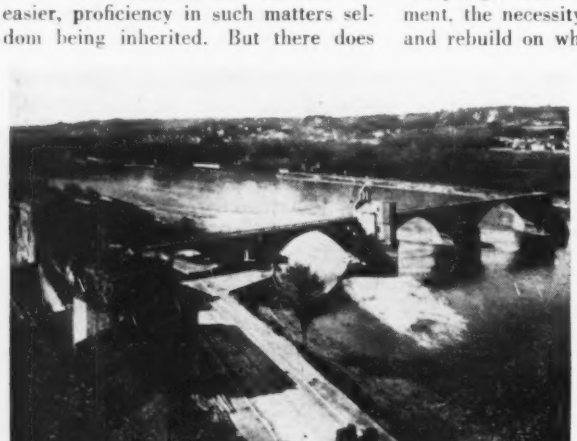
Unfortunately, experience in postwar reconstruction makes the task no easier, proficiency in such matters seldom being inherited. But there does develop a state of mind that permits accepting, without complete discouragement, the necessity to start over again and rebuild on what is left.

Such a state of mind exists in the lower Rhone valley today. Bridges and buildings are being rebuilt. A great new project to canalize the river and utilize its fall for hydro power has been begun. Marseilles, not strictly in the valley, but joined to it by canals and the great Rove ship tunnel, works steadily to repair the grave damage done its port installations. And Lyon, grown too big on its textile and other industries for efficient traffic circulation, takes up anew a major express highway plan interrupted by the war, at the same time that it undertakes to return to service its many bridges destroyed by German demolitions.

Hadrian, the prince of Roman builders, whose precept and example spurred the construction of the great aqueducts, theaters, roads and bridges in the valley at the beginning of the Christian era, could look upon the activity with satisfaction. So could the medieval bridge building brotherhood of monks, the Freres Pontiffes, who opened up traffic routes for the Crusaders 1,100 years later. Conversely, much evidence of what these Romans and monks built remains to give the present builders in the valley both inspiration and historical perspective.

The ancient works in the Rhone valley are too well known to most engineers to justify detailed description here, yet a few of them may properly be recalled. The existence of World War II ruins alongside these ancient monuments in such towns as Arles and Avignon emphasizes the contention concerning inspiration and historical perspective.

In Arles, which, in common with Marseilles, was Greek at least 600 years before it was Roman, still stand the ruins of the amphitheater, largest Roman building outside Rome itself. Built in dressed stones without mortar, its major axis is 450 ft. long and its minor



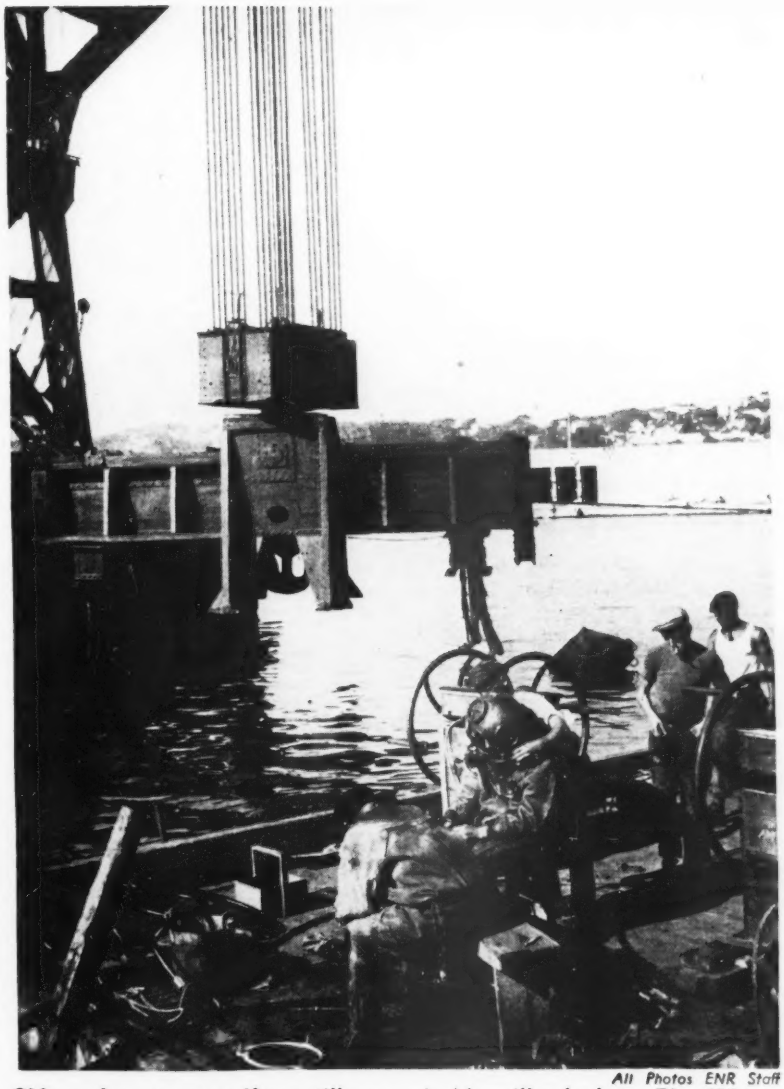
***Avignon,** despite recent war damage, retains its medieval character in a number of famous structures, including St. Benezet's bridge and the 3-mile long gated wall.*

axis 350 ft. Compared to the one in Nimes, mentioned in an earlier article, the Arles amphitheater is, however, badly disintegrated.

A fitting contemporary structure is the theater at Orange, still by far the largest building in town. The great rear facade of the stage is 121 ft. high and 340 ft. long, and arranged in front of it are modern seats built on the foundations of the old, for plays and pageants are still given here. Not only is it probably the oldest municipal theater in the world, but its acoustics are so good as to be miraculous. It now seats 18,000 spectators as against the 40,000 in Roman times.

Avignon, whose railway bridge was a prime target of Allied bombing, is a third of these ancient Roman cities although its present famous structures are of Eleventh to Fourteenth century vintage instead of First. Noted as the seat of the Papacy from 1309 to 1376, the city is dominated by the huge fortress-like Palace of the Popes that completely covers the 3½-acre summit of the highest hill. Around much of the town itself extends a 3-mile long Fourteenth century wall of amazingly graceful appearance despite its massiveness.

But probably the structure for which Avignon is most famous is St. Benezet's bridge, with a chapel on one of the river piers and on the deck of which the dances were held whose memory is perpetuated in the children's song known to all the world," "Sur le pont d'Avignon, Tout le monde y danse en rond." St. Benezet's bridge was not damaged in the war, although its appearance belies the fact. It lost all but four of its 100-ft., three-centered arches in a flood many years ago and was never rebuilt.



All Photos ENR Staff

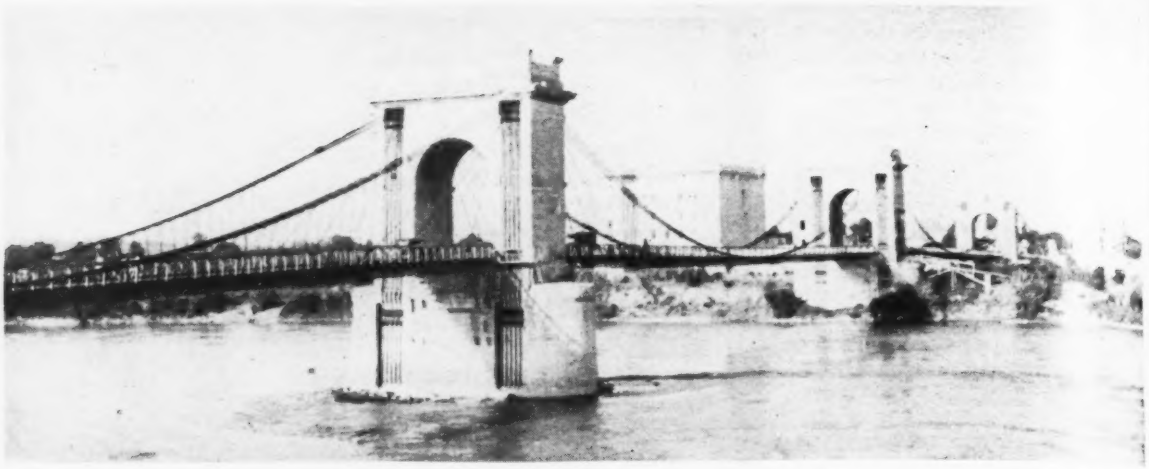
***Ship salvage operations** still go on in Marseilles harbor. The 450-ton crane, built before the war to aid in building jetties of huge precast blocks, has been of inestimable value in the work.*

Transition from these days of ancient construction achievement to the present is afforded by two other bridges at Avignon, one over the Durance River, a tributary of the Rhone and one over the Rhone itself. These are multiple span suspension structures, originated by Marc Seguin, the great French bridge engineer about a century ago, and characterized by a multiplicity of cables arranged in two distinct and separate open-cable suspension systems, each anchored in each span to the towers themselves. One system is arranged in the conventional catenary curve, while the other consists of diagonal cables running from the tower tops to the roadway where they connect to a horizontal tie cable. As each cable of each system passes over the shoe at the top of the tower it is brought down vertically along the face of the tower to a connection near the base. Thus it is the weight of the tower masonry above this connection that resists the cable pull and serves the purpose of an anchorage.

These bridges, which might be called a Rhone valley type so frequently do they occur, (even, in some cases, with a single tower in the center of the river and only two "side" spans instead of in multiple span design) are extremely complicated by an impressive array of gadgets in the form of clevises, spreaders, equalizers, bolts, pins and castings. Under heavy truck loads their deflection is frightening. It is said to be the plan to abandon their use in the future, and foundations for a new mulitple span suspension bridge over the Durance at Avignon, in which the modern concept of horizontal ties at the tower tops (called cables de tete, by the French) will be used, are actually under way.

On the other hand, a new bridge of the old type has recently been opened at Donzere, but this may be through necessity rather than choice. The people of the town burned the old bridge (they all have timber floors and stiffening trusses) so that Allied planes would be saved the trouble of bombing it and perchance destroying the town in the bargain. Rebuilding to the old design was quicker than to attempt something new; and it was cheaper, low cost being the principal reason for the existence of this type of bridge in the first place.

Donzere, with its new bridge, has another importance at the moment, however. It is the headquarters for the field organization of the Compagnie Nationale du Rhone that is beginning construction of a many million dollar project to improve the river from Lyon to below Avignon for navigation and power. A



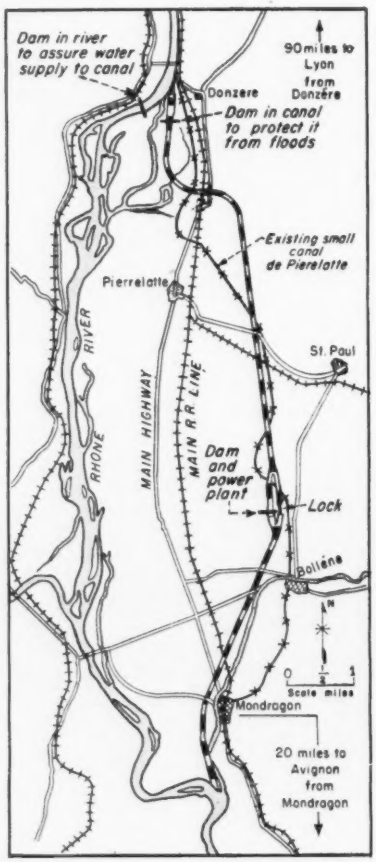
Seguin type suspension bridges *with two distinct cable systems, anchored to the towers instead of to conventional end anchorages, are a frequent sight in the lower Rhone valley. This one crosses the river at Tarascon.*

quasi-public corporation, the CNR is a cooperative organization of all the potential users of the hydro-power to be developed—the French government, the railways, the national electricity commission, the regional chambers of commerce and the like. It is also building Genissiat Dam far up on the Rhone River near the Swiss border, which will include over 400,000 kw. of generating capacity and which is said to equal in importance the ten largest existing hydro-plants in France. The Lower Rhone project is the second big job that it has undertaken. Profits from these first projects will be used to finance additional developments in the lower Rhone valley, so that, eventually, Rhone water will generate 10 billion kw. hr. annually, or nearly half of France's present 24 billion kw. hr. consumption, about half from hydro, half from steam.

The whole plan for the lower Rhone is a grandiose one, often likened to the TVA. From Lyon to Avignon there are envisioned ten power plants of a gross capacity of 1,383,000 kw., and some 90 miles of canals bypassing rapid and tortuous sections of the river. Plans are included also for irrigation diversions from the canals.

For first development, the central section of this length was chosen, and of the three divisions in this section—about 20, 10 and 20 miles long respectively—the one farthest south was selected for immediate construction. This decision was made because this division permits development of the highest head and includes geological formations that offer the least construction difficulty. With respect to the latter there has even been found a rock foundation location for the power plant which it had first been thought would have to be founded on pliocene clay or gravel the principal underlying materials of the area.

The Donzere-Mondragon project, as it is called, will cost about $150 million and will consist of a low dam in the Rhone a short distance below the town of Donzere to raise the water level at this point nearly 18 ft., a canal 17 miles in length, and a power plant above Mondragon near the downstream end of the canal, adjacent to which a navigation lock will be installed. This lock, 72 ft. wide and 296 ft. long will have a single lift of 69 ft., probably not exceeded anywhere. The total length of the river influenced by the project is 25 miles, and the drop in this section is 94 ft.



Route *of the Donzere-Mondragon canal in the Rhone Valley showing location of dams, power plant and lock. Present work is in vicinity of Pierrelatte.*

Donzere dam will be of wicket type, and three navigation openings, each regulated by 27 wicket gates, will be provided. In the lay-down position the wickets will provide a water depth of 5 ft. 2 in. at low water, sufficient for the larger tugboats to follow the river in case this is desirable.

The entrance to the canal will be located in a curved portion of the stream in a manner to reduce to a minimum the entry of debris into the canal. The canal will be equipped with a protective gate, which will make it possible during a major flood, or in case of an accident to the canal, to shut off the flow into the waterway. The gate will be laid down as long as the water level in the Rhone does not exceed that of the highest navigable water, and thus normally will offer no hindrance to navigation.

The canal will be built on the alluvial flats of the river, but above the normal flood zone of the stream. For the first 10 miles of its length it will be in cut primarily, but high levees will be required for the last few miles. The water table throughout the valley is near the surface.

Determination of the best design for the canal required careful study, and numerous conferences have been held with earthmoving contractors. It has been concluded that the best solution from the navigation and construction

standpoint, and the one most economical, will be construction of a canal of sufficient cross section, that the velocity in the waterway will not exceed 4.25 ft. per sec. This design will permit riprap protection for the bottom of the canal, while stone masonry will be used to surface the side slopes from the top of the levees to about 2 ft. below the normal water level. The minimum width of the canal will be 329 ft., and the minimum water depth 10 ft.

Where levees are required to form the sides of the canal, they will be constructed with a top width of 26 ft. Permeable materials will be used, and deep trenches will be dug to anchor the levees into the foundation. Seepage will be collected by drainage ditches extending down to the level of the groundwater.

In designing the section of the canal below the power plant, the problem is somewhat different, for here the water level in the canal will be below the level of the groundwater. Therefore, to avoid a lowering of the latter, a clay shielding will be placed to prevent flow into the canal.

Where bridges cross the canal a vertical clearance of 23 ft. will be provided above normal water level. A horizontal clearance of not less than 230 ft. is specified.

The power plant, which will be named the Andre Blondel plant in honor of a pioneer French engineer in hydro-electric work, will be located about 6 miles from the upstream end of the canal. It will be equipped with six 66,000-hp. French turbines with adjustable blades. An average head of 72 ft. will be available at the plant, and the maximum will be 85 ft.

The average annual power production should total 1.7 billion kilowatt-hours.

***Chain-bucket excavator** of Dutch origin will do much of the bank sloping on the 329-ft. wide Donzere-Mondragon canal.*

The powerhouse will be located on the right bank of the canal and will be separated from the lock by a dam 115 ft. long equipped with discharge openings at the bottom closed by sector gates, which will open automatically should the turbines stop for any reason. The lock will be featured by a single underflow conduit for both filling and emptying.

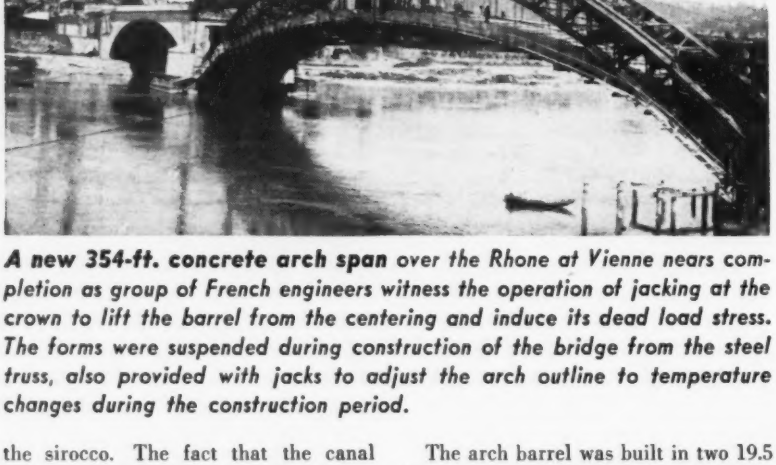
The magnitude of the job of constructing the canal is indicated by the fact that excavation will total about 65,000,000 cu. yd. Nearly $2 million worth of American construction equipment—12-yd. carrying scrapers, 20-yd. wagons, two-wheel tractors, crawler tractors, trucks and draglines—is being assembled to do the work. Power shovels and the huge bucket chain excavators, common to large European canal building, will also be used. Some sections of the canal will also be excavated by ladder dredges working in ground-water lakes. Belt conveyors suspended from towers on barges will move the material from the dredges into the embankment.

Present work consists in building a short section of canal to work out excavation procedure and to determine proper levee slopes and the permeability of the fills. Piezometer tubes are being installed for the latter purpose, and a pumping plant built so as to be able to fill the test section of the canal from a nearby small existing canal. By far the largest earthmoving and earth dam job the French have undertaken, they are leaving no decision to chance.

M. Rostagni, an engineer of the Ponts et Chaussees is chief engineer of the work. His troubles, in addition to design and construction planning, involve the classic one of dealing with farmers whose land will be confiscated. For the most part small truck-garden farmers, their opposition is understandable for they have beautiful, productive tracts on which they raise tomatoes, asparagus, melons and broom corn with the same meticulous care that they have learned to give vineyards. Plants are staked and windbreaks of poplar trees or of rush mats are installed at intervals to protect against the Alpine wind, the mistral, and the Mediterranean wind,

***Lined up ready to go** on the Donzere-Mondragon canal and hydro project is a part of the large assortment of American construction equipment that the French have purchased. More is on the way.*

***French construction workers** learn how to push heavy American construction equipment in anticipation of the 65 million cu. yd. of material that must be moved in building the Donzere-Mondragon canal and hydro plant.*



***A new 354-ft. concrete arch span** over the Rhone at Vienne nears completion as group of French engineers witness the operation of jacking at the crown to lift the barrel from the centering and induce its dead load stress. The forms were suspended during construction of the bridge from the steel truss, also provided with jacks to adjust the arch outline to temperature changes during the construction period.*

the sirocco. The fact that the canal project offers better irrigation water sometime in the distant future gives the farmers little solace.

Evidence of the modernity of French construction does not end at Donzere, for a few miles up river at Vienne work is nearing completion on a bold flat arch concrete span of 354 ft. over the Rhone (*ENR* April 10, vol. p. 545). For the central 207 ft. of the span the rise is only 18 ft., a remarkable achievement structurally and a great aid to navigation in the river. With centering hung from a three-hinged steel arch, with a large cableway to place the concrete and with the Freyssinet jacking method being used to help decenter the arch and induce its dead load stress, the operation is of 20th century caliber beyond doubt.

The arch barrel was built in two 19.5 ft. halves separated by a 3-ft. open space, so that the bridge appears to have two wide shallow ribs, and on the day of our visit jacking was in progress at the crown of the second half. Ten 50-ton hydraulic jacks, arranged in two tiers of five each, were being used, and a large number of French engineers were present to witness the exacting and careful procedure, which had begun at 4 a.m. and would not be completed before afternoon.

Vienne will have largely completed its postwar reconstruction when the new bridge is opened. Lyon, its neighbor a few miles upstream, is not so fortunate. It lost 22 of its 24 river bridges, as outlined in *ENR* Jan. 9, Vol. p. 34, and the reconstruction described in that article still goes on. Many months will pass before Lyon has repaired its war damage, and even this will not solve its more deep-seated traffic problem.

Founded in 43 B. C., Lyon has a heritage from Roman times, too. But the principal consequence of this heritage is a location for its central business district between the Saone and the Rhone rivers, which join here. Much like Pittsburgh, or Manhattan, industrial growth has made the city too big for its streets. Traffic must be diverted from this central area or channeled through it more effectively. Both objectives are a part of a plan begun before the war.

Already completed is a great arc of a superhighway around the eastern limits of the city, crossing the Rhone at its northern end on a concrete arch bridge, also just completed in time for the Germans to destroy it. Reconstruction of this bridge has first order priority along with the completion of a great vehicular tunnel beneath a hill between the two rivers. Over a mile long and 48 ft. in diameter to the inside of the semicircular masonry lining, the tunnel is finished except for the ventilation system.

According to present plans the ventilation system will be of the continuous intake and exhaust type, as used in the Holland and other American tunnels. Unlike our designs, however, both the fresh and vitiated air ducts will be installed above the roadway. Fresh air, coming into the duct from three shafts sunk from the top of the hill along the tunnel alignment, will be carried down to curb outlets in an annular space in the lining. Bridges across the Rhone and the Saone at the ends of the tunnel remain to be built.

The final element in Lyon's traffic project includes expressways along both banks of the Rhone similar to New York's East River Drive. Northbound traffic will use the left bank roadway and southbound the right bank. Much of the grading for these roadways already exists in the form of quais below the level of the marginal streets so that construction will not be too difficult except where alterations to existing cross river bridges must be made to permit the new trafficways to pass underneath. One interesting aspect of the plan is the fact that the design contemplates that portions of the roadways will be under water and thus out of service during flood periods.

Five years from now Lyon and the whole lower Rhone valley will present a different aspect that it does today. For, unless all signs fail, the cycle of rebuilding and development just starting will exceed in significance any similar postwar resurgence that the Romans, or monks or Renaissance builders engineered during their own so-called glorious ages of the past.

Water rates to rise

(*Continued from page 3*)

trial water was 1.73 cents per thousand gallons, exclusive of interest and amortization on the investment. The steel company is responsible for financing all costs attendant upon processing, pumping, delivering and distributing the effluents from the city's plant. Installation will cost more than $2,000,000.

Fluoride treatment caution

On an entirely different subject—addition of fluorides to municipal water supplies for control of dental caries—Dr. Wolman was a featured speaker.

He expressed great concern over the current wave of popular interest in the application of fluorides to water as a mass-medication medium, asserting that waterworks superintendents are being stampeded to adopt this treatment. He cautioned that they should resist being forced into a "practice which may not be wholly supported by existing epidemiological evidence."

Continued Dr. Wolman—"until the periods of controlled experimentation on water have fully elapsed and the findings on these procedures and their effect upon the exposed population have been authoriatively reviewed and assayed by competent medical, dental and public health professionals, the waterworks official should avoid the use of public water supply for "medication."

The attitude of a public health official concerning mass medication was expressed by Dr. J. C. Geiger, director of public health, City and County of San Francisco, who, in commenting on Dr. Wolman's paper, urged officials to heed the warning expressed and wait for the results of the mass experiments now under way before attempting the addition of fluorine.

California's big headache

To an audience in which there were many people from the East and the Midwest sections of the country who had witnessed for the first time the importance of water in semi-arid regions, Samuel B. Morris, general manager and chief engineer, Los Angeles Department of Water and Power, outlined the problems faced by California in connection with water allocations from the Colorado River.

Alluding to the current controversy between Arizona and California over allocation of the water, Mr. Morris said that the only solution to the impasse would be a decision by the U. S. Supreme Court. The water controversy centers around interpretation of the Colorado River Compact, an agreement by the Colorado basin states, which allocates 7,500,000 of the first 15,000,000 acre-feet of flow per year for use by Arizona, California and Nevada.

"It is important," Mr. Morris continued, "that it be finally determined just what amount of water may legally be used in Arizona and California, respectively, and that the enormous amounts of money requested for government projects be spent only upon the definite assurance that water is legally available for allocation to the project."

Water supply on the islands of the Pacific, still another area of limited supply, was discussed by Frederick Ohrt, manager, Honolulu Board of Water Supply. Mr. Ohrt outlined the engineering and geologic studies involved in such supplies and indicated that, some years hence, water demand in Honolulu may exceed the amount available for use from annual rainfall on which the island's supply is dependent.

In a discussion of labor problems confronting water utility administrators, Wendell R. Ladue, AWWA president and chief engineer and superintendent, Bureau of Water and Sewerage, Akron, Ohio, said that passage of the Taft-Hartley Act has served notice on top labor leadership as well as management that they, and those for whom they pretend to speak, are no longer beyond a law urged and desired by their many friends. When labor grows up and assumes its rightful place beside management in American economy, he said, both will look back on the Taft-Hartley Act as the starting point in orderly and badly-needed economic reform.

Mr. Ladue submitted a policy of labor-public management relationships which included the following points—1. The public must give public-management officials freedom of action in their relationships with utility workers and allow them to stand aloof from petty political considerations. 2. Public man-

(*Continued on following page*)

First showing of new sanitation equipment

Among the 104 exhibits that not only filled the arena of San Francisco's Municipal Auditorium but overflowed into the corridors on both sides, were several pieces of equipment on display for the first time.

These items included the General Electric automatic, recording turbidometer and "thermo pilot levelling control", the latter—without requiring any moving parts in the tank—indicates, records or operates relays as liquid surfaces reach predetermined levels. The operating element is a series of thin metal terminals placed at the desired levels in the tank and kept at 150 deg. F. by an elecrtic current that heats a negative coefficient resistance material. When the temperature of these terminals is successively affected by contact with the liquid as surface levels change, corresponding circuits actuate relays.

A new sewage chlorinator, reflecting several years of development plus a wartime operating record, was shown in the Wallace and Tiernan Co. exhibit. This device is a dosage-control mechanism whose time selection switch can be set to change automatically the rate of chlorine delivery at any desired hour of the day or night. At each change the dosage rate will automatically be adapted to any of three predetermined "programs" or rates of dosage, thus controlling the treatment to suit known daily changes in sewage characteristics. Application of the chlorine is made by the standard aspirator or by motor driven centrifugal injector.

An aerator of novel design was introduced by the Chicago Pump Co. This aerator is made up of units that have little resemblance to the old carborundum-tube type they replace. Of considerably smaller size, they are made of thin, stainless steel covered with saran plastic in the form of 3-stranded cord.

The cylinders weigh about one fifth as much as their predecessors, involve low head loss, a slow rate of clogging and are said to be relatively easy to clean. Cleaning is done by either blowing out the sediment or by reversing the air flow to produce suction. The metal tube is corrugated lengthwise and has perforations in the depressions, thus leaving open space between metal and plastic. Compressed air introduced in the tube escapes through the narrow spaces between successive turns of the plastic cord which is very tightly wrapped around the steel. The result provides a speedy and well dispersed train of air bubbles.

Under the direction of Arthur T. Clark, secretary manager of the Water and Sewage Works Manufacturers Association, the exhibit was acclaimed the largest display of water works and sanitation equipment ever staged by the association.

Water rates to rise

(*Continued from preceding page*)

agement must show fairness in its dealings with the workers—It must not fall back on anti-strike legislation and either become a regimented taskmaster or a hypocritical paternal overseer. 3. Both the management and the workers in public service must realize and carry out their responsibilities to the public.

Engineers' organizations for labor bargaining purposes were discussed by Sterling S. Green, materials engineer, Los Angeles Department of Water and Power, who has been an outstanding leader in such groups on the West Coast. Mr. Green said that the necessity for this type of organization will diminish in the minds of professional engineers when management establishes policies of uniformity of salary for comparable types of work, recognition of the ability of the individual, with promotions based upon such ability and outstanding effort, and of elimination of fear on the part of the employee that opposition to or discussion of company policies will react adversely as to the opportunity of the individual for advancement in the organization.

Abstracts of other technical papers will be published in an early issue.

Off the convention floor

This being the first time that a concurrent convention for both water and sewage works groups had been staged, not a little interest was expressed in the outcome. General sentiment seemed to be that this type of joint meeting should not be attempted again for a period of at least five years—if at all. Few cities, incidentally, have the facilities afforded by San Francisco for conducting a joint venture of this kind.

There was no denying of a great community of interest between the two groups, and manufacturers-members found that the occasion of a dual conference offered a great incentive for providing more elaborate exhibits than normally would be used at two separate meetings. But delegates found their schedules too crowded, and many were faced with the constant problem of which of several concurrent sessions to attend. As a result of this unavoidable conflict, attedance at individual sessions was not always as large as desired.

Also, it appeared as if the AWWA activities overshadowed the conference —a not unlikely conclusion since of the total registration of 1,426 men, the water association group numbered 1,115 and the FSWA only 712 the difference between the sub-totals and the overall registration figures is accounted for by the fact that 401 delegates registered for both. Only by dual registration and payment of two fees could a delegate attend all of the sessions a situation that caused some hard feelings among those with only a single registration.

Federation picks officers

At a meeting of the Board of Control of the FSWA the following slate of officers was approved, formal election of which will take place in October: President, George S. Russell, consulting engineer, St. Louis; Vice-President, Victor Ehlers, state sanitary engineer of Texas; treasurer, W. W. DeBerard, city engineer, Chicago. The new director-at-large will be Don Bloodgood, professor of sanitary engineering, Purdue University.

An increased membership of 339, bringing the total to 3,998, was reported by W. H. Wisely, executive secretary of the federation. Member affiliates of the federation now total 32 separate groups.

Mr. Wisely also said that the FSWA had received a grant of $33,800 from the National Institute of Health to set up a research program for the study and improvement of standard methods of sewage and industrial wastes analysis. The program is to be conducted in seven universities laboratories

The committee on awards recommended that the Harrison P. Eddy Award go to Richard Pomeroy and Fred D. Bowlus, the George Gascoigne Award to L. S. Kraus and the Charles Emerson Award to Langdon Pearse.

The 1948 convention of the FSWA will be held in Detroit, Mich.

AWWA officers and awards

Succeeding Wendell R. Ladue as president of the AWWA is N. T. Veatch, Kansas City—(See *ENR* July 17 vol. p. 89 for biographical sketch.) Linn H. Enslow, editor of *Water and Sewage Works* took office as vice-president and Wm. W. Brush, editor of *Water Works Engineering*, again occupies the post of treasurer. Malcolm Pirnie, consulting engineer of New York, was the recipient of an honorary membership in the association. Louis R. Howson received the John M. Goodell prize—provided by *Engineering News Record* in memory of a former editor. Ellsworth Filby of Kansas City was awarded the John M. Diven Medal in recognition of his services to the association in promoting postwar planning.

Harry E. Jordan, secretary of the AWWA reported that the total membership now stands at 6,632. The 1948 meeting of the AWWA will be held in Atlantic City, N. J.

Upward trend shown in private construction

Private builders began work on 75,000 new permanent dwelling units in nonfarm areas during June, according to preliminary estimates of the Bureau of Labor Statistics of the U. S. Department of Labor. This was 2,500 more than were started in May and continued a steady upward trend begun last January. June has frequently, in past years, marked the beginning of a seasonal decline in home building.

Housing units started in June exceeded the number placed under construction in June last year by more than 10,000. The increase brings to 359,000 the total number of new permanent dwellings started during the first 6 months of 1947, placing this year's activity, 19,000 units ahead of the first half of 1946.

Approximately 62,800 new permanent family dwellings were completed during June, 2,900 above May and 32,200 more than in June last year. During the first 6 months of 1947 a total of 362,800 permanent dwellings were completed amounting to 234,200 more than in the same period of 1946.

Federal Housing Authority applications in June totaled 48,755—five times the total for June, 1946—and an all time FHA high. Rental housing applications in June were nearly double the total for the entire seven months of the 1946 emergency housing program.

East St. Louis contracts for new Mississippi span

William J. Howard, Inc., 35 E. Wacher Drive, Chicago, Ill., submitted the lowest bid, $6,490,000, to the East St. Louis City Council for the construction of a new toll vehicular bridge across the Mississippi River between East St. Louis and St. Louis, Mo., and was awarded the contract. Actual construction must be started by Aug. 7 under the terms of the Congressional authorization, and the job must be completed within two years.

The proposed bridge will be about 800 ft. upstream from the Eads Bridge, connecting Third Street and St. Louis Avenue, East St. Louis, with the Missouri shore near Third Street and Franklin Avenue, St. Louis. The plans and specifications for 7,700-ft. reinforced concrete and steel cantilever-type bridge were prepared by G. A. Maney & Associates, Chicago and Evanston, Ill.

The bridge is to have five vehicular lanes, there will also be sidewalks. The main span is to be approximately 1,000 ft. and there will be two 500-ft. spans.

NEWS IN BRIEF

In telegraphic form, here are latest news developments on the engineering and construction front during the week.

Construction—Pittsburgh Plate Glass Co. will receive bids Aug. 5 for construction of a $500,000 distribution warehouse and office building at Grand Boulevard and Market St., *St. Louis, Mo.*. . . Erection of a 1,000-bed hospital is planned for *Vancouver, B. C.*, to cost $3,000,000. . . . A $250,000 theater is to be built at *Hays, Kan.* . . . Franklin Simon will build a $1,500,000 store at *Atlanta, Ga.* . . . Work has started on a large dormitory and a radio station at Louisiana State University, *Baton Rouge, La.* . . . A home for chronically ill and a general hospital and medical center will be built in *Baltimore, Md.*, by the Lutherans . . . A low bid of $593,593 for construction and alterations has been received by the General Hospital, *E. Stroudsburg, Pa.* . . . Texaco has final plans for its $30,000,000 petroleum refinery at *Gloucester, N. J.* . . . Plans are in progress for the $700,000 Holy Family Hospital at *Wilmington, N. C.* . . . Sloane-Blabon Corp. has started work on a $1,000,000 industrial building at *Philadelphia, Pa.* . . . Work is being speeded on the new city airport for *Baltimore, Md.* at Friendship Church. Other buildings under way or imminent in Baltimore total over $75,000,000. . . . Two new office buildings at *Dallas, Tex.*, will cost $4,800,000. . . . Ground has been broken for a $2,000,000 extension of the Allis-Chalmers plant at *Pittsburgh, Pa.* . . . Keeley Institute will erect a $500,000 hospital at *Dwight, Ill.* . . . Ohio state University, *Columbus*, will make a start soon at the Ohio Soldiers and Sailors Orphans Home, *Xenia.* . . . Construction of a $15,000,000 pulp mill near *Ketchikan, Alaska*, is planned by the Puget Sound Pulp & Timber Co. of Bellingham, Wash., if Congress approves sale of timber in Tongara National Forest. . . . Arundel Corp., Baltimore, Md., has started digging a 34-ft. channel in the *St. Johns River, Fla.* . . . In August *Seattle, Wash.*, will open bids on $4,000,000 worth of school building. . . . *Broome County, N. Y.*, is discussing $2,000,000 of school construction. . . . A $2,000,000 building board factory will be built by H. R. MacMillan Export Co., Ltd., near *Vancouver, B. C.* . . . *Portland, Ore.*, opens bids next month on a $2,000,000 lumber terminal on Willamette River. . . . A 250-room resort hotel has been contracted for at *Phoenix, Ariz.* . . . Work has started on a $3,000,000 expansion at Mt. Zion Hospital, *San Francisco, Calif.* . . . Plans are under way for the conversion of Fort Benjamin Harrison, *Indianapolis, Ind.*, into a housing development. . . . Plans will be ready about Sept. 1 for a $3,400,450 airport terminal at *South Bend, Ind.* . . . FHA construction loans in *Arkansas* for first half of this year topped the dollar volume for all of 1946. . . . About $760,000 is being spent to improve Mallton Airport, *Toronto, Ont.* and it is planned to spend $500,000 to expand harbor sites in that city. . . . West Virginia Pulp & Paper Co. has nearly completed its $8,000,000 plant at *Charleston, S. C.* . . . Among the New England construction projects planned or under way are: The building of a $1,500,000 addition to the plant of A. G. Spaulding & Bros., Inc., in *Willimansett, Mass*: construction of a $3,500,000 power development plant at *Union Falls, Me.*, for the Central Maine Power Co. and preliminary work on the new Wilder Dam, *White River Junction, Vt.*

Highways—Bids are to be opened Aug. 8 on $1,250,000 of road projects in *Kentucky*. . . . South Carolina Highway Commission has approved a $5,000,000 bond issue for roads. . . .Widening South Street and relocating Erie R. R. tracks at *Warren, Ohio*, will cost $2,449,500. . . . A parking authority has been created at *Pittsburgh, Pa.* . . . The *Vermont* state highway board since the war has placed under contract or started with force account 143 miles of road construction and 22 bridges at a cost of over $5,000,000. . . . *Delaware* is reactivating its traffic and planning division. . . . *Florida* recently received bids on $2,300,000 of road jobs. . . . *Utah* has a $3,000,000 road construction program for 1948. . . . Only two toll bridges now remain under the *Ohio* State Bridge Commission. . . . *New Jersey* has 55 road projects authorized for the current fiscal year. . . . Legislation has been enacted in *Illinois* appropriating $15,000,000 for secondary and feeder roads throughout the state.

Sewers and water supply—*Mt. Holly, N. J.*, will start a $650,000 sewage disposal system early next year. . . .Water Superintendent K. T. Hoefle of *Dallas, Tex.*, says that city should start building a new filtration plant soon. . . . A $200,000 water system improvement at *Malvern, Ark.*, will be completed next summer. . . . State board of health has approved plans for 13,000 ft of new sanitary sewer at *Coffeyville, Kan.* . . . *Indianapolis, Ind.*, officials are studying a comprehensive sewer rehabilitation program. . . . Contract has been awarded for a pipe line and city reservoir at *Hiawatha, Kan.*, . . . *Charlotte, N. C.*, has sold $1,500,000 bonds for water supply, sewers and other improvements. . . . Pipeline construction for waterworks at *Little Rock, Ark.*, was at an all time high last year, costing $530,000. . . . *Syracuse, N. Y.*, has started a third conduit to Skaneateles Lake to cost $350,000. . . .Western N. Y. Water Co. has been asked to present a plan to improve its facilities to serve *Erie County* outside of Buffalo. . . . *Atlanta, Ga.*, is about to acquire property for a $2,500,000 filtration plant for Buckhead and the North Side. . . . A $5,000,000 sewage disposal project for *Chattanooga, Tenn.*, is being planned by Polk, Powell & Hendon, Birmingham, Ala., and L. A. Schmidt, Jr., Chattanooga.

Rochester, N. Y., honors 100-year-old engineer

The 100th birthday of Edwin A. Fisher, an engineer who planned and saw execution of many programs for the physical betterment of Rochester, N. Y. was celebrated recently by 125 citizens of that city at a luncheon in his honor. The tributes were highlighted by a letter from Governor Thomas E. Dewey saluting the "integrity and loyalty" of a public servant whose record "well can serve as a model for all communities."

Governor Dewey's message was read by William H. Roberts, former Rochester public works commissioner and now chairman of the State Board of Standards and Appeals. Herbert W. Pierce, former public works commissioner, and Harold W. Baker, former city manager and public works commissioner, spoke highly of Mr. Fisher. Joining in the praise were Public Works Commissioner August H. Wagener; Robert B. Jeffers, vice-president of the Rochester Engineering Society, of which Mr. Fisher was the first president; and Cecil Aronson of the Rochester Section, American Society of Civil Engineers.

Big increase noted in American airports

During the year from June 1, 1946, to June 1, 1947, the number of airports increased by more than 800 fields or from 4,268 to 5,074, the Civil Aeronautics Administration recently reported. Of the fields now in use, 2,383 are commercial airports, 1,612 municipal fields, 189 CAA intermediate, 660 military, and 230 of miscellaneous classification.

Total registered aircraft as of June 1 was over 92,000, the CAA further reported.

MEN AND JOBS

De Leuw, Cather & Co., consulting engineer of Chicago, Ill., announce the recent appointment of **Samuel L. Hollopeter** as their South America representative. For the last twenty years, Mr. Hollopeter has been director general of the Empresas Publicas Municipales of Barranquilla, Colombia. He left recently on an extended trip through Colombia, Venezuela, Brazil and Argentina.

Roy S. Braden, city manager at Raleigh, N. C., has been named a member of the Raleigh-Durham Airport Authority to succeed William B. Barrow, Jr., retiring municipal commissioner of public works at Raleigh.

Thomas G. Waring has been appointed acting resident engineer for the Lookout Point Dam at Lowell, Ore., by Col. O. E. Walsh, Portland, Ore., District, Corps of Engineers. Prior to his appointment he was with the operations division of the Portland district and previously had served the district in various capacities at Bonneville Dam.

E. W. Richards, city engineer at Suffolk, Va., for the last four years, has been appointed city manager of Elizabeth City, N. C., succeeding Jerome C. Flora.

J. R. Drummy, who has been connected with the Reconstruction Finance Corporation at Cincinnati, Ohio, has been named industrial engineer and head of the industrial department of the Raleigh, N. C., chamber of commerce. Drummy received his civil engineering degree from the University of Kentucky in 1921 and for seven years was connected with the Kentucky State Highway Department, later serving as assistant sales manager of the Portland Cement Co. at Knoxville, Tenn. During the war he served as a major in an Army Air Corps engineering unit.

Theodore H. Noe of Wilmington, N. C., has been appointed sanitation engineer for the Near East Foundation at Tehran, Iran. During the war he served in the Pacific area with the sanitation department, Tenth Army.

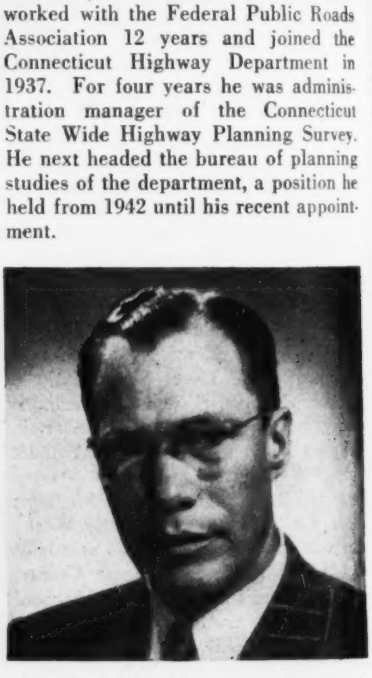
James L. Frink, city manager at Greensboro, N. C., has resigned to become head of the construction, engineering and maintenance department of Burlington Mills Corp. Mr. Frink will replace **K. H. Boydell,** who has been elected vice-president in charge of general manufacturing of Burlington Mills International Corp.

Russel A. Fowert, with the engineering department of Oregon for the last 22 years, is now with the Tillamook County engineer's office.

Roy E. Jorgensen has been named deputy highway commissioner of Connecticut. He was graduated from the University of California in 1930. He worked with the Federal Public Roads Association 12 years and joined the Connecticut Highway Department in 1937. For four years he was administration manager of the Connecticut State Wide Highway Planning Survey. He next headed the bureau of planning studies of the department, a position he held from 1942 until his recent appointment.

Serving without pay on the advisory committee to the mayor's Administrative Transportation Planning Council are these San Francisco engineers: A. W. Earl, consulting engineer; L. A. Elsener, Chicago Bridge and Iron Co.; F. E. Bonner, consulting engineer, and N. A. Bowers, associate editor of Engineering News-Record. Unsnarling the city's traffic problems is under discussion here.

Relaxing during meetings of the Interstate Commission on the Potomac River Basin at West Virginia's Cacapon State Park are, left to right: H. T. Renning, Keystone Tanning and Glue Co.; J. S. Thayer, Kelly-Springfield Tire Co.; E. T. Roetman, American Viscose Corp.; J. G. Patrick, West Virginia Pulp and Paper Co., and Roy McCracken, E. I. DuPont de Nemours Co.



Max K. Socha, formerly assistant engineer of design, has been appointed engineer of water distribution of the Los Angeles, Calif., water works. He had been assistant design engineer since 1940.

Hillary T. Rudder, city engineer of Pine Bluff, Iowa, submitted his resignation to Mayor George Steed on June 26. Mr. Rudder said he was resigning to return to the Pine Bluff Arsenal as assistant to Capt. William M. Lewis, post engineer. He was city engineer for 10 years before entering the army and returned to that post last April.

Karl Masters has been appointed city engineer of Buffalo, N.Y. according to Public Works Commissioner E. G. Speyer. Mr. Masters, who formerly was assistant city engineer, succeeds Frederick W. Crane who has been named general manager of the Buffalo Sewer Authority.

Reece Snyder, who has been with the municipal government at High Point, N. C., for 20 years, in recent years as director of parks, is now city manager of Red Springs, N. C.

Robert C. Faucett, engineer with the War Assets Administration at Richmond, Va., has been named city manager at North Wilkesboro, N.C. He was an engineer with the Works Progress Administration district office at North Wilkesboro for several years before entering the armed services during World War II.

Warren M. Creamer, Farmington, has been named director of engineering construction of the Connecticut highway department to succeed Leslie S. Summer, who retired June 30 after 31 years. Mr. Creamer was graduated from Trinity College, Hartford in 1917. His first experience was with the State of Pennsylvania and also the Pennsylvania Railroad. He joined the Connecticut Highway Department in 1922, and subsequently served as assistant engineer, senior highway engineer and design engineer. He planned a large part of the design of the Merritt Parkway.

Frederick H. Johnson, project engineer in charge of the construction of Connecticut's Wilbur Cross Parkway now under construction is planning to retire from the State Highway Department, where he has been since 1913.

E. W. Richards has been named city engineer and assistant city manager at Elizabeth City, N. C., succeeding the late M. M. White.

H. M. von Oesen, a member of the city engineering department at Wilmington, N. C., has been named consulting engineer for the town of Carolina Beach, N. C.

J. R. Thompson has been appointed contracting engineer, American Bridge Co., U. S. Steel subsidiary, Boston district office, succeeding **W. B. Hunter** who has been made senior contracting engineer American Bridge Co., Chicago Office. Mr. Thompson was graduated as a civil engineer from Georgia School of Technology. He joined American Bridge Co. at its Ambridge, Pa., plant. In 1937 was appointed assistant to the contracting engineer of the Cincinnati office, and was assigned to Elmira, N. Y., in 1945 as contracting engineer.

Claude H. Helms, city manager of Morganton, N. C. for teh past three years and at Tryon, N. C., previously, has been named city manager at New Bern, N. C., a newly created post.

Earl Hellener, city engineer at Atchison, Kan., has become acting city manager, succeeding **Walter Johnson,** who has accepted the city management of Emporia, Kan.

A recent meeting of regional engineers of the American Institute of Steel Construction at New York City brought together (left to right): Henry Penn, AISC district engineer at Chicago; Hal W. Hunt, associate editor of Engineering News-Record; Henry Stetina, AISC district engineer at Philadelphia, and William Popert, AISC district engineer at San Francisco.

W. N. Ryerson (left) senior highway engineer for PRA; D. H. Stoll, superintendent for Brinson Const. Co., and L. O. Hester, project engineer for the Florida highway department, confer near Sebring, Fla.

On an inspection trip of the Corps of Engineers' dredging work in New York Harbor, George Brown (left) engineer on surveys, and J. P. Groenendyke (right) chief of the River and Harbor Division for the New York district, explain the fine points of channel dredging to J. F. Salmon (left, center), New York manager, and Stanley Reich, chief engineer in New York, for the Arundel Corporation.

HIGHLIGHTS OF MUNICIPAL DEVELOPMENTS

Summarizing current activities in city engineering and construction throughout the country.

Long-range municipal improvement program for Washington, D. C. —Boston's offstreet parking plan—Railroad relocation at Chattanooga—Indianapolis Water Co. sued

A comprehensive 11-year municipal improvement program for the District of Columbia calling for $219,000,000 of construction has been prepared by Washington officials in cooperation with the Washington Board of Trade. It follows a preliminary 6-year plan prepared by District officials in June, 1946, under the supervision of Brig. Gen. Gordon R. Young, engineer-commissioner.

Over $67,000,000 of construction in the years 1948-1955 is proposed, followed by $17,000,000 of construction in the next stage, and still more for work in the closing years of the program for which no estimates are provided.

Highway projects to be carried out at an early date include construction of two bridges over the Potomac River to replace the 14th Street crossing, construction of an underpass under Dupont Circle, completion of the K Street viaduct, and expressway work.

Waterworks improvements total $38,000,000. Over $8,000,000 is listed for filtration improvements at the McMillian and Dalecarlia treatment plants, more than $7,000,000 for construction of trunk watermains, and over $4,000,000 for work on the secondary mains and hydrants. Raw water facilities account for $4,000,000 and reservoir and tank facilities for nearly $6,000,000.

For sewage disposal facilities, a $27,000,000 program is planned, including $10,800,000 for relief sewers and nearly $10,000,000 for stormwater sewers. Sanitary sewers would cost $3,800,000.

School and related construction is listed at above $36,000,000, with $26,000,000 given a high priority in the 11-year plan.

Recreational facilities will account for another $4,600,000 of work, and added library accommodations almost the same amount.

Welfare construction amounts to over $12,000,000, new administration buildings $10,000,000, refuse disposal projects nearly $3,000,000, and health facilities, including additions to several hospitals, $9,000,000.

Announcement of the 11-year plan was preceeded a few days by release of a comprehensive parking program for Washington. Prepared by the District of Columbia Parking Agency and the District highway department, the latter report calls for a strong program by the parking organization to encourage the investment of private capital in the construction of downtown garages, improved parking lots, and related facilities.

Furthermore, the establishment of several fringe parking areas connected to the downtown area by express transit facilities was also recommended. The report concluded that if private capital was given assurance that it would not need to compete with construction of government-financed facilities, many parking garages and lots would be built by commercial interests.

Parking program starts

Razing of buildings for the beginning of Boston's $5,000,000 off-street parking program is under way. While much cannot be accomplished under present plans to unsnarl Boston's tangled traffic, city officials believe the off-street projects will be helpful.

Three sites have been selected and will be taken by eminent domain. These areas are in the shoe and leather district at Essex and Lincoln streets; in the retail shopping district running from Winthrop Square to Federal street; and in the financial district, at Franklin and Pearl streets.

Railroad relocation survey

The Chattanooga, Tenn., Terminal Authority Board recently accepted the joint proposal of L. A. Schmidt, Chattanooga, and Pope, Powell & Hendon, Nashville, to conduct a survey for railroad relocation in Chattanooga.

Financed from a $60,000 grant from the Federal Works Administration, the survey will start in the near future, and is expected to be completed in about nine months.

If the terminal authority adopts one of the plans submitted, the joint organization will be authorized to proceed with preparation of detailed plans and specifications and, under the terms of the present contract, will supervise construction. The board is already empowered to issue bonds in an amount not exceeding $10,000,000 at any one time for the purpose erecting the terminal and relocating rail lines in the city.

Under the plan the roads would be required to use the terminal and rentals would be used to retire the bonds. Once amortization is completed, the terminal would become the property of railroads in proportion to the amount paid in rent.

Water company sued

A suit asking $100,000 damages from the Indianapolis Water Co., Indianapolis, Ind., to enforce a demand for water service in the two southeast sections of the city was filed recently in the circuit court. It specifically asked that the utility be enjoined from providing water outside before rendering service inside the city limits.

The action was brought by two principals representing property owners in areas now dependent on wells for water supply. Furthermore, it was pointed out that residents of these sections have been denied water service while the utility sought to serve the west suburbs outside the city.

Vote on city center

At Canton, Ohio, a $2,850,000 bond issue for construction of a municipal auditorium will be submitted to voters at a special election Aug. 26. Plans call for a main auditorium building with a seating capacity of 6,000 connected to a theater-type building seating 1,600 and a smaller assembly room accomodating 225.

Richmond expressway

Construction of an expressway through Richmond, Va., and a "starter" appropriation of $200,000 were approved recently by the Board of Aldermen.

In the approval it was specified that the middle section from Broad St. to Idlewood Ave. be built first and that no part of Monroe Park be used for the expressway.

At the same time a plan for the city government to take over and enlarge the city stadium at a cost $250,000 was defeated.

AFL building trades unions to fight Taft-Hartley Law on construction

Will resist through the courts any move by NLRB to apply the statute to the building industry

AFL building trades unions plan to resist through court action any move by the National Labor Relations Board to apply the Taft-Hartley Law to the construction industry.

They cite as a basis for staying out from under the new law the fact that during the 12 years of the Wagner Act, which only unions could use against employers, the NLRB elected not to handle disputes in the construction industry.

This exercise of administrative discretion in the past now is a source of concern to NLRB officials. The Taft-Hartley Law is no different from the Wagner Act as to what industries are covered, but the situation today differs in two important respects.

1. Employers now have recourse to NLRB machinery. 2. At least two salient features of the new law—bans on the closed shop and jurisdictional strikes—were aimed directly at abuses in the construction industry.

In a bulletin on the new law sent to affiliated unions, Joseph A. Padway, AFL general counsel, clearly stated the building trades unions' intention to resist being drawn into NLRB wheels.

"Although heretofore the Wagner Act has not been applied to such traditionally local industries as the construction industry. . .it may very well be that there will be an attempt to extend the new law to these industries," Padway said. "Every effort to combat such attempts will be made through the courts, but it is possible that on any construction job where materials are received from across state lines, or where the building in question will be used to house an interstate concern, employers probably will seek to include such situations within the scope of the new law. Unions involved in such situations should guide themselves accordingly."

Senator Taft's position

NLRB in the past shunned the construction industry because its activities were largely intrastate, rather than interstate. Now comes Sen. Robert A. Taft, co-author of the new law, who inserted in the Congressional Record of July 8 some questions and answers on the law. Asking whether the condemnation of jurisdictional strike as an unfair labor practice will prevent such strikes in the construction industry, Taft answers:

"The construction industry ordinarily would be intrastate commerce and would not be affected by the act. Of course, there are instances where it is interstate commerce, and in such cases the employer can obtain a decision from the National Labor Relations Board settling the jurdisdictional strike."

Thus, Taft agrees with the position taken to date by the NLRB that the construction industry "ordinarily" is intrastate and not subject to federal law. At the same time, he calls for NLRB action where it is interstate.

Interstate or Intrastate?

It would appear, then, that NLRB must make itself available to the construction industry and face criticism from the AFL unions. After that is decided, the board will have to make still other trail-blazing decisions.

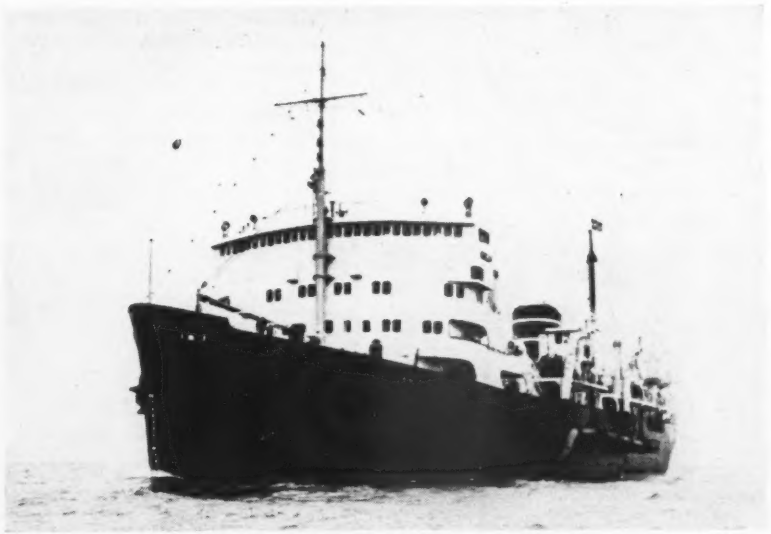
One will be to differentiate as to what construction work is interstate (and covered by the law) and what is intrastate (and not covered). There are no court decisions or other precedents under the Wagner Act to guide NLRB. It may look to the Wage-Hour Act for help.

The building of highways, bridges, factories, railroads and railroad stations and some office buildings probably comes under the "interstate commerce" definition, but that is not true of strictly local work like home building. A union boycott against a product shipped in interstate commerce seems to come under the legal curbs provided by the Taft-Hartley law.

Another nut for NLRB to crack will be the matter of conducting union shop elections in the building trades, where so many mechanics are hired by the day or for a particular job. One plan suggested is to conduct them by crafts on an areawide basis.

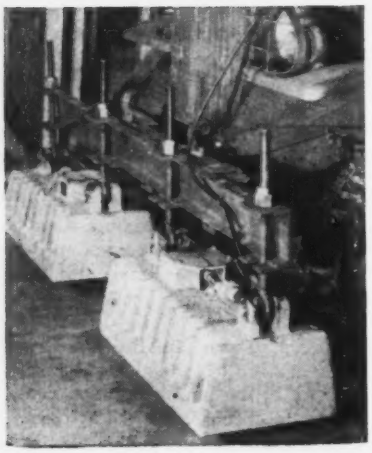
Unions still want closed shop

This is only part of the woods which the new NLRB will have to cut its way out of when it takes over Aug. 22. In the meantime, the building trades unions are trying to chart their own course. They have lost the closed shop by law, but hope they won't lose it in practice. Perhaps to avoid any action which might be used against it in the future, the AFL Building Trades Executive Council recently decided not to make any more national decisions on jurisdictional disputes among its affiliates. The matter will be considered again at a meeting to be held Sept. 3 in Chicago.



Hopper-type Dredge *The "Comber" is the first of a fleet of four ocean-going hopper-type dredges being built by Ingalls Shipbuilding Corporation, Pascagoula, Miss., for the Corps of Engineers. The dredges are being built at a cost of approximately $4,250,000 each. They are powered and equipped to go anywhere in the world at a speed of 13 knots. The hoppers have a capacity of 3,000 cu. yd.*

Army Engineer Show



Magnetic Sweeper—*Believed one of the most effective electromagnetic sweepers for removing scrap metal from highway and airport pavements, this unit consists of two pickup units mounted at the front and one at the rear of truck. Power for the magnets is provided by a 5 kw., 115-volt generator.*

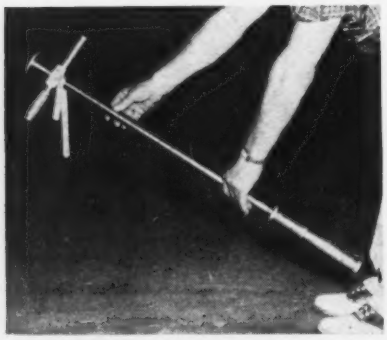
New engineering equipment under development or tests at the Army Engineers' testing laboratories at Fort Belvoir, Va., was displayed to several hundred civilian and military engineers recently at an annual two-day "open house" program.

A surprisingly large amount of special tools not exhibited at last year's show (*ENR* June 13, 1946, vol. p. 928) was demonstrated to the more than 2,000 who attended.

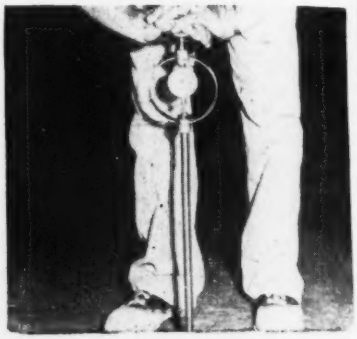
Most spectacular demonstration was the delivery of sections of aluminum pipe for military fuel pipeline by helicopter (*ENR* June 5, vol. p. 904). Other developments, not included in the accompanying photographs, included: the first 10-second optical-reading theodolite manufactured in the United States; 5 kw., 900-lb. portable electric generating set; one of the most complete collimator rooms for accurate testing of the horizontal circles of theodolites; and regulators free of moving parts for engine-generator sets.

Col. E. S. J. Irvine, president of the Engineer Board and director of the Fort Belvoir laboratories, presided at the showing.

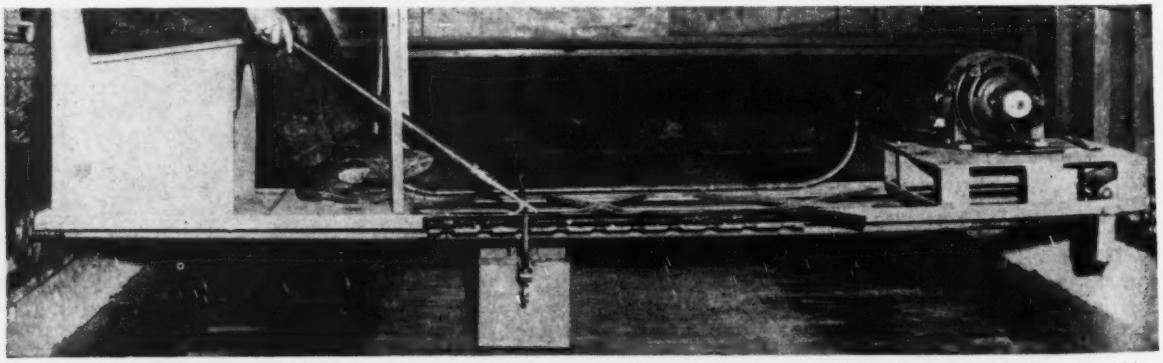
Light Pipe—*Worker easily handles a 20-ft. section of aluminum pipe designed to carry petroleum, after a helicopter delivered several sections of pipe in a demonstration of speedy pipeline construction. Each section of pipe weighs 65 lbs., and sections are assembled by using bolted aluminum couplings.*



Soil Sampler—*A thin-walled sampler of about 2-in. inside diameter, is designed to obtain sample of soft, fine-grained soils without excessive deformation of the material. A piston creates a vacuum above the sample as the tube is forced downward, and later extrudes a known length of the sample from the cylinder.*



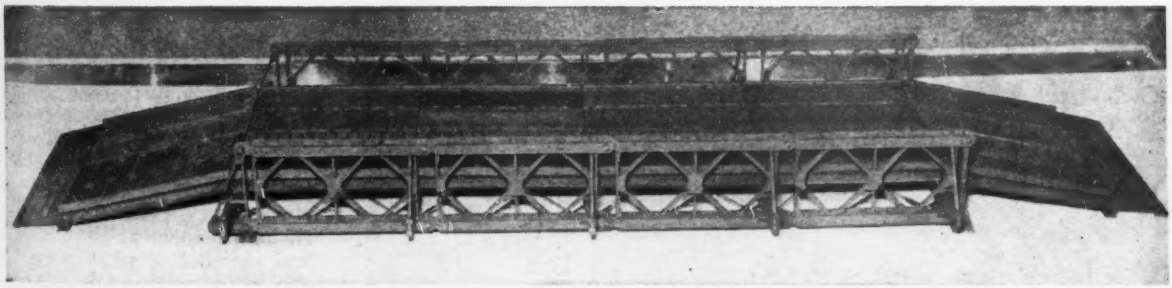
Soil Tester—*Built for the Vicksburg Waterways Experiment station, this cone pentrometer measures the supporting power of soils for vehicles. Load applied on the soil is measured by a proving ring and dial gage, instead of by a coiled spring as in the earlier developed instrument reported in ENR, Dec. 12, 1946, vol. p. 809.*



Tests Landing Mats—*Used to determine whether a mat of new design merits full-scale tests, a weighted, rubber-tired cart is pulled back and forth over a scale model of the mat (one-sixth scale) while supported on 8 in. of prepared soil. The cart simulates a main B-29 dual landing wheel, total cart load being 1/216 of the 70,000-lb. wheel load of the giant aircraft.*

Snow Melter—*To provide a means of reducing ice and snow to liquid form when no other water supply is available, this Army-developed experimental device is direct-fired, and consists primarily of an insulated melting chamber with three burners each having independent two-pass combustion chambers, and mounted on skids to facilitate handling. The unit is said to be capable of melting ice or snow at the rate of 500 gal. per hour, at an ambient temperature of 50 deg. below zero. Ice is fed manually through a top hopper, and water is withdrawn at the front, above the burners. Burners are of the pressure-vaporizing type, capable of burning standard leaded motor gasoline. Fuel is carried in tanks mounted on the rear of the unit, and the necessary air pressure for the fuel system is provided by the small manually operated diaphragm type compressor located on the left side of the shell. During the past winter, a smaller single burner unit was tested in the Arctic, and although rated at 50 gal. per hour, it melted snow at a rate of over 100 gal. per hour.*

Footbridge—*Designed for use in fast currents, this floating footbridge will support foot troops in full field equipment, double-timing across the bridge at 60-in. intervals. It is light in weight, compact, easy to erect, and capable of withstanding rough handling. The two principal components are: the treadway units, fabricated from aluminum alloys, 10 ft. long, 24 in. wide, and 8 in. deep; and the floats, which are rigid-type, 14 ft. long, 2 ft. wide and 14 in. deep. Although the floats shown at right are hollow, it is expected that the design will include an expanded filler material inside the floats, to make them unsinkable in case of penetration by bullets. The bridge replaces an older structure, found unstable in fast-moving water.*



Tactical Bridge—*A model demonstrates a heavy tactical bridge of the pony truss type, recently designed and now under study. The bridge can be built with a roadway width of either 14 ft. 6 in. or 22 ft., and in spans up to 150 ft. in increments of one panel length of 15 ft. It can be built to carry 60-ton tanks on spans up to 150 ft., and for 100 and 150-ton tanks, up to 120 ft. The bridge will be built of aluminum alloy 14 S-T.*

Reconstruction in Greece to cost $48,000,000

Total cost of the reconstruction work planned by the U. S. State Department in Greece has been placed at $48,000,000 and a small staff of American engineers is now being selected to work under Dwight P. Griswold, chief of the U. S. mission. The work is part of a U. S. foreign aid program to cost $1.3 billion. This amount includes a total of $400,000,000 for Greece and Turkey together, but aid to the latter country will not include construction work.

Only reconstruction work is planned in Greece. About $13,500,000 will be spent for railroad reconstruction, $9,600,000 for port facilities, $10,300,000 for highway work, $5,000,000 for mines and industry, and $3,600,000 for reclamation and irrigation. The harbor work includes the rebuilding of the port at Piraeus. Also planned are $2,000,000 of tele-communications construction, $2,000,000 for housing, and $2,000,000 to repair the Corinth Canal.

In carrying out this program, American engineering firms will be employed to do both engineering and construction, it being planned to use architect-engineer-manager contracts similar to those used during the war. The work will be awarded in the next few days by means of negotiated contracts. Since all funds must be obligated by June 30 of next year, and since the economy of Greece is in bad shape, speed is considered of extreme importance. Contracts already awarded include a $700,000 award to U. S. Steel Export Co., New York, for fabrication bridge steel.

Robert L. Cochran, civil engineer, as deputy to Mr. Griswold will be in general charge and he is already in Greece. Cochran is well qualified for this job. Following 26 years with the state of Nebraska, including 12 years as state engineer and three terms as governor, he served as a colonel in the U. S. Army. Later he was director general for UNRRA in the Mediterranean theater. The last two years Cochran has been in the U. S. Bureau of the Budget.

Chief of the reconstruction group will be Arthur A. Dobson, construction engineer and partner in the Dobson-Robinson engineering and construction firm at Lincoln, Neb. Dobson served on Lt. Gen. Albert C. Wedemeyer's staff in China during the war.

Harold F. Holtz, mechanical engineer and general contractor also from Lincoln, will serve as assistant chief, while Edward W. Digges, who has been with the U. S. Army Engineers at Baltimore for the last 11 years, will be engineer of ports. Charles B. Jones, who once was chief engineer of field operations for the U. S. Army Engineers on Panama Canal, and more recently foreign commissioner for Canada and the North Atlantic for the Foreign Liquidation Commission, will be in charge of materials.

Reconstruction of railroads will be supervised by Robert A. Radford, who served with the American forces on railroad construction in the European theater in World War II and previous to that was regional director of seven states for the PWA.

W. E. Corfitzen, civil engineer in the Washington, D. C. office of Bureau of Reclamation, will supervise the reclamation work. E. L. Worthington, state highway commissioner of West Virginia has been appointed an engineer to supervise the highway reconstruction.

Vernon G. MacKenzie, for the last year assistant to the chief of the General Sanitation Section of the U. S. Public Health Service, will go to Greece to supervise the sanitary activities.

Reconstruction *of the damaged Port of Piraeus is one of the tasks in which the American mission now going to Greece will participate.*

Science foundation bill sent to the President

Legislation authorizing the establishment of a National Science Foundation (*ENR* July 24, vol. p. 101) was approved last week by Congress and sent to the President for approval. The major last-minute change made in the bills as finally approved was elimination of the provision that 25 percent of the foundation's funds must be distributed to the land-grant and publicly supported colleges. The law now states that as far as practical, all areas of the nation shall be represented in the foundation's activities.

R. F. Goudey quits service of Los Angeles, Calif.

Raymond F. Goudey, longtime principal sanitary engineer, Los Angeles Department of Water and Power, has left the employ of that city after disagreement with city officials on policy matters, more particularly with reference to royalties received by Mr. Goudey from a manufacturer. As this issue went to press it could not be learned whether Mr. Goudey would open an office as consulting engineer in the sanitary field or would enter the employment of a private company.

Sewage plant changes approved in Providence

The Providence, R.I., city council has approved improvements in the city's sewage disposal plant as recommended by Director of Public Works C. F. McElroy. The work will include erection of a permanent building to house chlorinating equipment; alteration of channels to flume, aeration of mixed liquor channels, and flow meters. An experimental installation has been giving excellent effluent results since May 1. When the plant was converted from a chemical precipitation to an activated sludge plant, the channels were not modified, and weekly flushing has been required, according to Mr. McElroy.

No recommendation for the chlorinating equipment or a 650,000-gal. detention tank will be made pending improvements in the equipment now in use and the trial of trunk sewers as detention chambers for a further period. It is planned to conduct experiments on a plant scale to determine whether prechlorination of the sewage after screening and grit removal is advantageous and economical.

OBITUARY

Curtis C. Westfall, 61, engineer of bridges of the Illinois Central R.R. for the last 30 years died in Chicago, Ill., July 23. He joined the railroad as draftsman in 1907 upon being graduated from the University of Illinois as a civil engineer.

Henry C. Kellogg, 30, junior civil engineer for the New York State Department of Public Works, died recently of injuries sustained when he was run over by a truck at Potsdam, N. Y. His father is employed as a civil engineer in the Watertown office of the State Department of Public Works.

Willie Ivey Taylor, 48, civil engineer, formerly of Roxboro, N. C., was killed July 14 in an automobile accident near Ridgeville, Tenn., where he was connected with the Tennessee Highway Department.

Samuel Preston Shriver, 64, inspector with the city engineer department of San Diego, Calif., died July 5. Mr. Shriver had been with the engineering department almost 25 years.

Leslie Standish Hall, 55, principal hydraulic engineer for the East Bay Municipal Utilities District, died July 5. Mr. Hall resided in Oakland, Calif., for 27 years and served with the utilities district since 1924.

Vernon L. Glaze, 57, chief of exploration work in the Sacramento, Calif., district of United States Engineers, died July 11 near the Pine Flat Dam site, while returning from an inspection tour on the project. During the war, Mr. Glaze was the civilian engineer in charge of military construction in the Sacramento area and directed construction at McClellan and Mather fields and at Camps Stoneman and Kohler.

He went to the Sacramento Engineer office in 1938 after carrying out one of the major engineering assignments on the Bonneville Dam. In Sacramento he had been in charge of the design and construction of dams. In the late 1920s, Mr. Glaze was on the federal bureau of public roads staff and served as resident engineer in Glacier and Mount Rainier National Parks.

Oliver Lasby Flanagan, civil engineer associated with many hydraulic developments in Canada, Brazil and other countries as South America, died at Toronto, Ont., July 21. Born in Ontario, Mr. Flanagan was graduated from the University of Toronto and shortly afterward was engineer of construction of the Temiskaming and Northern Ontario Raceway (now the Ontario Northland R. R.)

Joseph I. Buckley, 54, engineer for the last 35 years in Washington, D. C., died July 19.

Edward Brevoort Renwick, 88, retired engineer, died July 23 at Short Hills, N. J. He was graduated from Stevens Institute of Technology in 1884, and had his own firm in New York City for many years.

New N. Y. medical center to cost $20 million

Four streets in midtown Manhattan, New York City, will be closed off to make room for the proposed $20,000,000 New York University—Bellevue Medical Center, according to an agreement signed by Mayor O'Dwyer and Harry W. Chase, chancellor of the university.

Adjacent to and north of Bellevue Hospital, the streets are 30th, 31st, 32nd and 33rd between First Avenue and Franklin D. Roosevelt Drive, near the East River. The university ceded to the city 17,500 sq. ft. of land for an Institute of Forensic Medicine, estimated to cost $1,500,000, to be jointly operated by the city and the College of Medicine.

University plans include a college of medicine, a 480-bed university hospital, a university clinic, an auditorium, a residence hall and an Institute of Rehabilitation and Physical Medicine.

THE COVER PICTURE

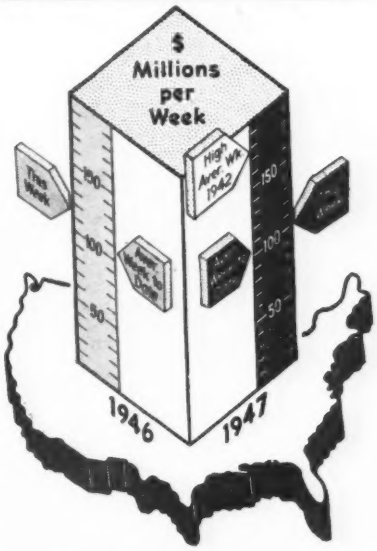
A concrete rigid frame factory, building under construction at Sao Paulo, Brazil, for General Electric, S. A. (*ENR* March 27, vol. p. 475) is now nearing completion.

The structure is a continuous frame, with bents whose columns are of twin-leg design below the level of the crane rails. The sawtooth roof is also framed of concrete, with vertical members inclined 60 deg. away from the face so that windows can be made continuous. The precast concrete slabs used for the backs of the sawtooth skylight are placed on cast-in-place concrete roof beams.

The narrow but deep girders are of 66 ft. span.

Companhia Constructora Pegado-Sousa, of Sao Paulo, are contractors. Design was prepared by Andrew Vogel, of International General Electric.

CONSTRUCTION ACTIVITY



As Reported this week to ...
Engineering News-Record

CONTRACT VOLUME

Continental U. S. Only (Thousands of Dollars)

	Week of July 31 1947	Cumulative 1947 (31 wks)	Cumulative 1946 (31 wks)
Federal	$8,778	$408,675	$469,495
State & Mun.	25,840	993,672	815,135
Total Public	$34,618	$1,402,347	$1,284,630
Total Private	66,216	1,795,756	1,975,598
U. S. Total	**$100,834**	**$3,198,103**	**$3,260,228**

WHERE CONSTRUCTION ACTIVITY ORIGINATED THIS WEEK

Dollar Volume (Thousands)

Type of Work	This Week	Cumulative 1947 (31 wks)	Cumulative 1946 (31 wks)
Waterworks ..	$591	$65,665	$61,474
Sewerage	1,365	76,413	59,837
Bridges	7,924	101,546	78,093
Highways	9,816	474,428	472,263
Earthwork, Waterways	1,581	190,709	257,005
Buildings, Public	12,710	325,704	239,490
Industrial ...	44,316	480,735	620,914
Commercial .	18,652	1,049,975	1,233,263
Unclassified ...	3,879	432,928	237,889

NOTE: Minimum size projects included are: Waterworks and waterway projects, $22,500; other public works, $40,000; industrial buildings, $55,000; other buildings, $205,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1947 (31 wks)	Cumulative 1946 (31 wks)
NON FEDERAL	$1,205,206	$1,000,808
Corporate Securities..	497,890	301,368
State and Municipal.	707,316	474,440
Fed. Aid Highway...	.....	225,000
FEDERAL	.....	1,498,168
Total Capital	**$1,205,206**	**$2,498,976**

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost...	July '47	406.52	195.41
Building Cost	July '47	304.87	164.80
Volume	June '47	276	121

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *E. R. BIGGERSTAFF, M. R. ROESSLER, Statistics*

WATER SUPPLY

Construction Reports received since this section went to press will be found in Last Minute Construction Reports.

BIDS ASKED

Bids Asked August 5

N. Y., Tusten—Tusten Town Bd. office Town Clerk, Narrowsburg. Contr. 2, pump house, piping, and standpipe foundation; Contr. 3, standpipe; Contr. 4, installing six in. water main for Narrowsburg Water Dist., Plan deposit $5. Alexander Potter Assoc., 50 Church St., New York, N. Y., consult. engrs.

Bids Asked August 6

Minn., Worthington—City, G. S. Thompson, clk, water distr. sys. extens., 23,220 ft. 6 to 8 in. cast iron pipe, fittings, etc. Over $22,500. Plans deposit $15.

Mo., Dixon—At office, city clk., Dixon, elevated water tank and tower, appurtenances. Plans deposit $10. Russell & Axon, 6635 Delmar Blvd., University City, St. Louis, Zone 5, engrs. CD 10/2—ENR 10/17.

Bids Asked August 7

Utah, Salt Lake City—City, c/o Irma F. Bitner, Recdr., City and County Bldg., 13,700 lin. ft. 48 in. steel pipeline from 17 South St. to Park Reservoir. W. D. Beers, city engr. CD 5/24/44—ENR 6/1/44.

Bids Asked August 11

Minn., South International Falls—Village, E. J. Lynch, clk., watermain extens., about 4,500 lin. ft. 6 in. c.i. main and fittings. $22,500. Plans deposit $5. W. C. Larson, Detroit Lakes, engr.

Bids Asked August 12

Calif., San Diego—San Diego Co. Water Authority, 314-321 Union Bldg., constructing easterly section of Fallbrook-Oceanside Branch of San Jacinto-San Vicente Aqueduct, pipeline and appurtenances, for carriage and distr. of water.

Bids Asked August 20

• **Okla., Bartletsville**—City, Eva Sanderson, city clk., constructing water treatment plant, river intake, connecting pipelines, pipeline materials, valves, hydrants and appurtenances. $1,100,000. Plans deposit $25. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. CD 7/17.

Pa., Cresson—Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, imprv. water sys. at Tuberculosis Sanatorium 2, steel elevated water tank; rein.-con. covers for reservoirs; construction cover for sludge bed, Imhoff Tank and repairing syphon chamber cover. $50,000. Plans deposit $5 each. G. A. Danielson, 209 Hayes Bldg., Erie, engr.

Bids Asked August 21

Pa., Chester—Chester Municipal Authority, 5 and Welsh Sts., dam at Pine Grove on Octoraro Creek. Plans deposit $20. Albright & Friel, Inc., 1528 Walnut St., Phila. Zone 2, consult. engr. CD 12/9—ENR 12/26.

Bids Asked

La., Lake Charles—M. Kushner & Assoc., Lake Charles, c.i. water lines and facilities. $60,000.

LOW BIDDERS

Calif., San Francisco—Pub. Utilities Comn., City Hall, July 22, replacing Stone Dam Aqueduct, Sect. No. 1, Spec 456, from Metropolitan Constr. Co., 111 New Montgomery St., San Francisco. $134,385. CD 7/8.

Ia., Newton—City, Newton, July 14, water reservoir, from Kucharo Constr. Co., Jewett Bldg., Des Moines. $72,380. CD 6/24—ENR 7/3.

Kan., Hiawatha—City, city, clk., addnl. water supply from Tetyak & Young, Kansas City, Mo. $39,971. CD 6/1.

Mont., Dooley—City, Dooley, July 9, water sys. extens., incl. mains, and hydrants, etc., from Utility Builders, 421 First Ave. North, Great Falls. $47,397.

S. D., Hill City—City, July 8, water supply and distr. from W. J. Parker Constr. Co, Standard Oil Bldg., Omaha, Nebr. $62,649. CD 6/26.

Tex., Austin—Austin Country Club, Austin, pumping plant, irrigation sprinkler sys. incl. main and laterals from Moore Constr. Co., 125 Riverside Dr. $56,013. Austin Engr. Co., 203 Riverside Dr., engr.

CONTRACTS AWARDED

Calif., Colusa — State Div. Architecture, Pub. Wks. Bldg., Sacramento, water supply lines at 44 Dist. Agricultural Assn., to Irrigation Supply Corp., Box 267, Yuba City. $33,265. A. Boy, Pub. Wks. Bldg., Sacramento, state archt. CD 2/8/45—ENR 2/22/45.

D. C., Wash.—Distr. Comrs., District., cleaning, relining watermains in various sections, to Centriline Corp., 140 Cedar St., New York, N. Y. $48,125. Bids 6/23.

Mass., New Bedford—City, H. C. Mandell, supt. WW, City Hall, 300,000 gal. capacity steel elevated water tank, to Pittsburgh-Des Moines Steel Co., 270 Broadway, New York, N. Y. $37,300. CD 9/25——ENR 10/3.

†**N. Y., Scotia**—Yards and Docks Annex, Navy Dpt., Arlington, Va., WW facilities at Naval Supply Depot, Spec. 18499 to Pittsburgh Des Moines Steel Co., 270 Broadway, New York Zone 7. $57,600. Bids 6/4.

Pa., Phila.—Dpt. Pub. Wks., City Hall Annex, Queen Lane Filter plant imprvs. Contr. 165 WWI to A. McClintock's Sons, 1937 Ridge Ave. $32,789. CD 8/28/46—ENR 9/5/46. Belmont Filter Plant ozonation bldg. addn., Contr. 311 WWI to W. M. Anderson Co., 600 Schuylkill Ave. $26,498. CD 6/20.

Que., Sherbrooke—Municipality, 2,000,000 gal. concrete reservoir to J. R. Royer, Ltd., Sherbrooke. $42,000. CD 11/9/43—ENR 11/11/43.

SEWERS, WASTE DISPOSAL

Construction Reports received since this section went to press will be found in Last Minute Construction Reports.

BIDS ASKED

Bids Asked August 4

Ill., Elizabethtown — Village, U. Douglas, clk., sanitary sewerage sys., Hurst-Rosche, Inc., Hillsboro, consult. engrs. CD 7/14—ENR 7/17.

Ont., Riverdale—F. O. Hagen, clk., Riverdale, drainage proj., for Greenock Twp. $55,000.

Bids Asked August 5

Mich., Adrian—City, E. A. Ballenberger, city clk., constructing sewers incl. 11,900 ft. 8 to 18 in. vitr. and concrete sewer pipe, manholes, connections. Over $40,000. Plans deposit $10. Shoecraft, Drury & McNamee, Ann Arbor, engrs.

Bids Asked August 6

Minn., Worthington—City, G. S. Thompson, clk., sewerage sys. extens., 29,547 lin. ft. 8 to 10 in. sanitary sewers. Over $40,000. Plans deposit $15. Perkins & McWyme, 320 Paulton Bldg., Sioux Falls, S. D., engrs.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks $22,500; other public works $40,000; industrial buildings $55,000; other buildings $205,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
•	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

Bids Asked August 11

Minn., Elk River—City, H. A. Briggs, clk., sewage disposal plant. Over $40,000. Plans deposit $15. Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, engrs. CD 4/25/46—ENR 5/2/46.

Bids Asked August 13

Conn., Stratford—Town, Town Hall, sewage treatment plant, Contr. IV; garage, Contr. V; fence, Contr. VI. Extended date. CD 6/18—ENR 7/10.

Ill., Peoria—Greater Peoria Sanitary and Sewage Disposal Dist., F. V. Aber, clk., foot of Darst, Proj. 9SD, 7,200 ft. 8 to 10 in. sanitary sewers, appurtenances. $32,736; Proj. 10SD, 23,500 ft. 8 to 15 in. sanitary sewers, appurtenances. $132,476. Greeley & Hansen, 220 S. State St., Chicago, consult. engrs. J. R. Longley, c/o owner, dist. engr. Plans deposit $20. CD 6/24—ENR 7/3.

Bids Asked August 15

Ore., Eugene—City, City Hall, third phase of sewer imprvs., involving Westmoreland-Chambers trunk sewer, incl. three large trunk lines and pump. $75,000. W. C. Clubb, City Hall, engr. CD 7/25/45—ENR 8/9/45.

Ont., Kerrwood—W. Wilson, clk., Kerrwood, drainage proj., for Adelaide Twp. $50,000.

LOW BIDDERS

Calif., Los Angeles—Los Angeles Co. Sanitation Dist., 1206 Maple St., June 25, Unit 2, Joint Outfall B Trunk Sewer, from Mike Miller Co., 877 N. Bunker Hill, Los Angeles, $308,737, est. $310,000; Sect. 2, 2, 3, 4 and 5 Arcadia Sierra Madre Trunk Sewer, from P. & J. Artukovich, 13305 S. San Pedro St., Los Angeles, $227,443.

Calif., Sacramento—Sacramento Co., Sanitation Dist. No. 1, Courthouse, July 21, main sewers, from A. Teichert & Son, Inc., Box 1133, Sacramento. $51,215. CD 6/27—ENR 7/3.

La., Winnsboro—Town, J. Dallas Maya, mayor, Municipal Bldg., July 10, sewerage plant sys. exten., imprv., from Koller Constr. Co., Trades National Bldg., Oklahoma City, Okla. $115,877. CD 7/1.

•**Mich., Detroit**—Dpt. P. Wks., City Hall, July 22, constructing Fox Creek Sewer, Cont. PW 195, from Mancini & Miller Thompson Co., 16530 Huntington Rd., $828,000; PW 163, from Gargaro Co., 40 Seven Mile Rd. East, $879,000. CD 7/11—ENR 7/17.

Mich., Sault Ste. Marie—City, Sault Ste. Marie, rejected bids, July 14, sewer sys. exten. L. B. $92,373. CD 7/8.

Neb., Brunswick—City, Brunswick, received no bids June 24, sewers and sewage plant. Est. $40,024. CD 6/5—ENR 6/12.

Tex., Ballinger—City, J. W. Moore, mayor, July 16, sanitary sewage disposal plant from Fitzgerald, Newton & Carey, McAllen. $62,744. CD 6/30.

Wis., Milwaukee—City, July 21, storm and sanitary sewers in E. Howard Ave. from Tomaro, Carle & Tomasini, 3825 E. Layton Ave., Cudahy, $62,367. Est. $57,900. J. P. Schwada, city engr.

CONTRACTS AWARDED

Ind., Anderson—City, Anderson, East Side sewers, to Thompson Constr. Co., Lemcke Bldg., Indianapolis. $91,000. CD 3/7/45—ENR 3/22/45.

Ore., Independence—City, City Hall extending sewer sys. to Werner & Jeske, 492 Park Ave., Eugene. $89,860. Est. $78,000. Bids 7/21. CD 7/10.

Ont., Toronto—York Twp., H. A. Hall, clk., 40 Jarvis St., sewage imprvs., Scarlet Rd., Ellinas Ave., Glamis Ave. area and on Lozsborough, Claybrooke, Glen Haven, Caolfax & Strathmere Aves., to Leaside Contr. Co., 41 Lavender Rd., Leaside. Approx. $44,000. CD 8/10/44—ENR 8/24/44.

BRIDGES

Construction Reports received since this section went to press will be found in Last Minute Construction Reports.

BIDS ASKED

Bids Asked August 5

Iowa—State Hy. Comn., **Ames**, one 150 x 48 ft. continuous I-beam overhead bridge, on Iowa 84 at the C&NW R. crossing south of Cedar Rapids, FG-909 (4); one 185 x 48 ft. continuous I-beam bridge on Iowa 84 over